

Executive Summary

1. Introduction/Background

Pacific Gas and Electric Company (PG&E) filed an application (Application Number A.02-09-043) for a Certificate of Public Convenience and Necessity (CPCN) with the California Public Utilities Commission (CPUC) on September 30, 2002 for the 27-mile Proposed Jefferson-Martin 230kV Transmission Line Project (Proposed Project). It involves rebuilding PG&E's existing Jefferson Substation to Martin Substation 60 kV double circuit power line. The new 60 kV/230 kV lines would be overhead along I-280 from Jefferson Substation to San Bruno Avenue, and then underground to the Martin Substation.

PG&E's stated objectives for the Proposed Project are fourfold: (1) to meet future electric demand and reliably serve the San Francisco and north San Mateo County areas under normal and reduced generation scenarios; (2) to comply with industry planning criteria of the California Independent System Operator (ISO) and the North American Electric Reliability Council (NERC); (3) to create a more diverse transmission system in the area, by providing a second independent major transmission line pathway in the area; and (4) to implement the ISO Board of Governor's April 2002 Resolution, that approved the Jefferson-Martin Project for addition to the ISO-controlled grid. In order to meet these objectives, PG&E's is proposing to construct and initiate operation of the Jefferson-Martin Project by 2006.

The CPUC is the State lead agency, responsible for compliance with the California Environmental Quality Act (CEQA). A Draft Environmental Impact Report (EIR) has been prepared by the CPUC in compliance with CEQA Guidelines. The EIR discloses the environmental impacts expected to result from the construction and operation of PG&E's Proposed Project and mitigation measures, which if adopted by the CPUC or other responsible agencies, could avoid or minimize significant environmental effects. In accordance with CEQA guidelines, the EIR also evaluates alternatives to the Proposed Project that could avoid or minimize the significant environmental effects. The EIR provides a comparison of the environmental effects of the Proposed Project and the alternatives, and identifies the Environmentally Superior Alternative.

The Jefferson-Martin Project EIR is an information document only; and does not make a recommendation regarding the approval or denial of the project. The purpose of the EIR is to inform the public on the environmental setting and impacts of the Proposed Project and alternatives. The EIR will be used by the CPUC in conducting the proceeding to determine whether to grant PG&E's requested CPCN. This Executive Summary (ES) provides an overview of the Proposed Project and alternatives considered, and the environmental findings and mitigation measures of the EIR.

Summary of Draft EIR Conclusions. This EIR analyzes the environmental impacts of PG&E's Proposed Project as well as alternatives that were developed as a result of public and agency input during the scoping process. Analysis is presented for two alternatives to the southern (overhead) segment of the Proposed Project and five alternatives to the northern (underground) segment, as well as two alternative transition station sites. As documented in detail in the Alternatives Screening Report (Appendix 1 to the Draft EIR), 19 additional alternatives were considered but eliminated from detailed consideration.

Based on comparison of the environmental impacts of the Proposed Project and alternatives, the Environmentally Superior Alternative is identified. In the southern area, the PG&E Route Option 1B Alternative (an all-underground route that would be installed in paved roads) is considered to be environ-

mentally superior. In the northern area, the Modified Existing Underground 230 kV Alternative (also all-underground, but following a much shorter route east of the Proposed Project route) is found to be environmentally superior. Because both routes are underground, no transition station is required.

The following sections provide the reader with a brief description of the Proposed Project and alternatives (including alternatives analyzed in detail and those eliminated from detailed consideration), a summary of environmental impacts in each environmental issue area, a summary of the comparison of alternatives, and tables listing all impacts identified in the Draft EIR.

1.1 Proposed Project

Description of the Proposed Project

Figure ES-1 is an overview of the route of the transmission line proposed by PG&E. The major elements of PG&E's Proposed Project are:

- Installing a new 27-mile 230kV transmission line — comprised of 14.7 miles of overhead line to be installed on a rebuild of PG&E's existing Jefferson-Martin 60kV double-circuit transmission line, and 12.4 miles of new underground duct bank.
- Dismantling the existing Jefferson-Martin 60kV double-circuit tower line and rebuilding the towers to enable the east side to operate at 60kV and the west side at 230kV.
- Constructing a new transition station near the intersection of San Bruno Avenue and Glenview Drive to transition from the overhead to underground transmission systems.
- Modifying the existing Jefferson and Martin Substations to accommodate the new 230kV transmission line;
- Modifying the equipment at the existing San Mateo, Ralston, Millbrae, and Monta Vista Substations, and the Hillsdale Junction switching station.

The Proposed Project would be located in the County of San Mateo and would cross the towns of Hillsborough and Colma and the Cities of Brisbane, Daly City, San Bruno, and South San Francisco. The 14.7 miles of overhead 230kV line would originate at the Jefferson Substation and terminate at a new transition station, proposed to be located at San Bruno Avenue and Glenview Drive. This part of the Proposed Project would parallel I-280 for much of this distance, and cross Peninsula Watershed Lands owned by the City and County of San Francisco (CCSF). The overhead portion of the project crosses Edgewood Park, the Pulgas Ridge Natural Preserve, and passes near the San Mateo Highlands residential areas of unincorporated San Mateo County, and the Towns of Hillsborough, Burlingame, Millbrae, before entering the City of San Bruno. From the proposed transition station, the Proposed Project would be constructed underground for 12.4 miles in city streets, the San Francisco Bay Area Rapid Transit (BART) ROW, and the Guadalupe Canyon Parkway to the terminus of the line at the Martin Substation. The underground section of the Proposed Project routes along San Bruno Avenue and the BART ROW in the City of San Bruno, follows the BART ROW through the City of South San Francisco, and then routes along a number of city streets through the Town of Colma, Daly City, and Brisbane to the Martin Substation.

The proposed overhead 230kV transmission line would be supported on lattice steel towers, which would replace the existing 69kV line lattice structures. The underground 230kV circuits would consist of three cross-linked, polyethylene-insulated (XLPE) solid-dielectric, copper-conductor cables, buried in a concrete-encased duct bank system.

Figure ES-1a. Overview of Proposed Project, Southern Segment
For security reasons this figure is not included in the online version of the report.

Figure ES-1b. Overview of Proposed Project, Northern Segment
For security reasons this figure is not included in the online version of the report.

Right-of-way requirements would vary for the overhead and underground sections of the proposed 230kV transmission line project. PG&E is proposing to expand the existing 50-foot-wide ROW to 100 feet wide, where the overhead 230kV transmission line would replace the existing 60kV system. The underground section of line would require a trench two to three feet wide, and construction equipment would occupy at least one full traffic lane.

PG&E has proposed installation of a transition station near San Bruno Avenue and Glenview Drive to convert the overhead circuit to underground. The station would be approximately 80 feet by 100 feet in size, and enclosed by a masonry wall. Equipment would include ground grid and conduit system, a 230kV dead-end structure, control building and underground vault.

Substation modifications are also proposed by PG&E at the existing Jefferson and Martin Substations to accommodate the new 230kV transmission line, and equipment modifications are proposed at the existing San Mateo, Ralston, Millbrae and Monta Vista Substations, and the Hillsdale Junction switching station.

Environmental Setting of the Proposed Project

The Proposed Project is located on the San Francisco Peninsula, entirely within San Mateo Counties except for minor modifications to a Santa Clara County Substation.

Southern Segment. The overhead (southern) segment of the proposed alignment, illustrated on Figure ES-1a, would originate in and remain in undeveloped open space entirely within unincorporated San Mateo County. It would pass through a valley formed by the San Andreas Fault, and would cross the fault zone in two places: near Jefferson Substation and near the proposed transition station. To the west, the Cahill, Sawyer, and Sweeney Ridges rise to elevations of 1,100 to 1,300 feet above sea level. Along the eastern side of the route are the Buri Buri and Pulgas Ridges. Enclosed within these ridges are the Upper and Lower Crystal Springs Reservoirs and San Andreas Lake, all water storage facilities of the San Francisco Public Utilities Commission (SFPUC). The route parallels the Interstate 280 (I-280) corridor. This portion of San Mateo County is known for its scenic qualities and aesthetic attributes and I-280 is a State designated Scenic Highway.

Beginning at PG&E's existing Jefferson Substation, the route would pass immediately into Edgewood County Park, then crossing Edgewood Road it would be in a portion of the Pulgas Ridge Preserve. Edgewood County Park is home to unique biological habitat supporting populations of endangered butterflies because of its serpentine soils; these soils and plant assemblages are also found within SFPUC lands further north. Upon leaving the Preserve, the remainder of the overhead route segment (13.8 miles) then would be entirely within SFPUC Peninsula Watershed along I-280 and the reservoirs. While the overhead alignment would remain on SFPUC lands, it would pass immediately adjacent to single-family residential neighborhoods in the communities of San Mateo Highlands, Hillsborough, Burlingame, Millbrae, and San Bruno for approximately four miles. For approximately 1.2 miles it would be located on the west side of I-280, along the east side of the Crystal Springs Golf Course. It would then cross over to the east side of I-280 adjacent to a residential area in the City of Burlingame and then cross I-280 again to the west (all within the Peninsula Watershed), then proceed north to San Bruno Avenue. Just east of the intersection of San Bruno Avenue and Skyline Boulevard, the overhead route would transition to underground at a new transition station that would be enclosed by an eight-foot-high masonry wall, with a total area of approximately 80 feet by 100 feet in the City of San Bruno.

Northern Segment. The underground (northern) segment of the Proposed Project is illustrated on Figure ES-1b and would pass through the urban environments of a succession of peninsula cities or towns: San Bruno, South San Francisco, Colma, Daly City, and Brisbane. The underground alignment

would pass through a continuously varying mix of land uses that includes single- and multi-family residences, commercial and office development, public uses, open space, schools, and a limited amount of light industrial and industrial development. Approximately three miles of the underground segment would be within the right-of-way over the recently completed BART tunnel in the Cities of San Bruno and South San Francisco. Within the Town of Colma, the alignment would pass numerous cemeteries. Between Daly City and Brisbane the proposed alignment would be installed within Guadalupe Canyon Parkway, passing through the San Bruno Mountain State and County Park, and then would turn into Bayshore Boulevard and into Martin Substation at the corner of Bayshore and Geneva Avenue.

1.2 Summary of Public Involvement Activities

The CEQA process for the Jefferson-Martin 230 kV Transmission Line Project began with the CPUC's issuance of the Notice of Preparation of an EIR on January 20, 2003 along with an extensive scoping process.

- The NOP was mailed on January 20, 2003, to 1,914 individuals, groups and government agencies identified for the initial EIR mailing list, based on PG&E's list of property owners located within 300 feet of the project facilities, as well as groups and individuals with a vital interest in the Proposed Project compiled by the EIR Team. In addition, the NOP was sent to four federal agencies, 18 State agencies, four county departments, 22 city departments, and 19 special districts.
- Four scoping meetings were held on January 29 and February 4 and 6, 2003, prior to selection of alternatives and the preparation of the analysis documented in this EIR.
- An estimated 70 members of the public and representatives from organizations and government agencies attended the four CPUC scoping meetings. The CPUC and staff attended eight consultation meetings with agencies and local jurisdictions to discuss the Proposed Project and hear any comments or concerns.
- Approximately 230 letters and emails and 31 oral comments were received during the NOP scoping period (January 20 to February 27, 2003) from public agencies and private citizens. In April 2003, a comprehensive Scoping Report was issued and 81 copies were distributed, summarizing issues and concerns received from the public and various agencies and presenting copies of all written comments received. The Scoping Report has been made available for review at the 16 repositories and on the Internet, and mailed to agencies, parties on the CPUC's Service List, and individuals who requested copies.
- An EIR e-mail address was created along with a telephone hotline for project information, as well as an Internet site, used to post all the public environmental documents (including this DEIR) and to announce upcoming public meetings.

1.3 Areas of Controversy / Public Scoping Issues

Private citizens and homeowners provided the majority of the comments during the Scoping process. In addition to private individuals, comments were received from the following organizations and government agencies:

- Highlands Community Association
- San Mateo County Trail Users Group
- Santa Clara Valley Audubon Society
- Committee for Green Foothills
- 280 Corridor Concern Citizens
- Friends of Edgewood Natural Preserve
- Sequoia Audubon Society
- Peninsula Corridor Joint Powers Board
- County of San Mateo
- City of Burlingame
- City of Burlingame Public Works
- Town of Woodside
- South San Francisco Schools
- City of Daly City

- Loma Prieta Chapter of the Sierra Club
- People for a Golden Gate National Recreation Area
- National Retail Partners
- City of San Bruno
- City of San Bruno Public Works
- Golden Gate National Recreation Area
- Daly City Public Works
- California Department of Parks and Recreation
- Bayshore Sanitary District
- Midpeninsula Regional Open Space District
- Highlands Recreation District
- San Francisco Public Utilities Commission
- Redwood City Planning and Redevelopment Agency

The issues raised during the public scoping process are described in detail in the Scoping Report (available on the CPUC's CEQA Project website), and are summarized below.

- **Human Environment.** The majority of public comments focused on the potential effect of the project on the human environment, most often expressing concerns with health risks arising from increased EMF emissions, visual and scenic impacts, and impacts to property values. Other common concerns expressed dealt with safety issues, noise, construction impacts, fire risk, interference with communication and electronic equipment, security, conflicts with planned uses, recreation impacts, and quality of life.
- **Natural Environment.** Comments from organizations, individuals, and government agencies addressed issues and concerns with the potential impacts that the project would have on the natural environment, particularly impacts to plants, wildlife, and habitats. Concerns were expressed that the project would affect (a) rare, threatened, endangered, and special status plant species, including serpentine assemblages, (b) federal and State protected wildlife species, and (c) sensitive habitats, especially serpentine habitats.
- **Purpose and Need.** Many comments from members of the public questioned the necessity of the project and expressed feelings that PG&E had not provided adequate justification for the project. The 280 Corridor Concerned Citizens and many other individuals indicated that the future demand for electricity in the Bay Area has been overstated, stating that PG&E's forecast is well above historical average recorded growth in peak loads and citing economic declines reducing energy consumption and artificial energy demand generated by power companies.
- **Alternatives.** Many comments from individuals and organizations and a number of government agencies suggested a variety of alternatives, including the No Project Alternative, local generation/distributed generation, demand reduction, alternative tower designs, and alternative routes.
- **Environmental Review and Decision Making Process.** A number of suggestions and comments were made regarding the adequacy of the environmental review and decision-making process. Individuals and agencies addressed issues such as late NOP receipt, potential future expansion of the transmission line, alternatives described in the NOP, need for NEPA compliance, and the CPUC's review process. Other comments stated that without a full evaluation of the justification for the project to be included in the discussion of the No Project Alternative, the EIR would be incomplete.

2. Alternatives

Alternatives to PG&E's Proposed Project are identified and evaluated in accordance with CEQA Guidelines. CEQA Guidelines (Section 15126(a)) state:

An EIR shall describe a reasonable range of alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.

CEQA Guidelines (Section 15364) define feasibility as:

. . . capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

Alternatives to the Proposed Project were suggested during the scoping period (February-March 2003) by the general public, and federal, State and local agencies after PG&E filed its Application for a CPCN. Other alternatives were developed by EIR preparers, presented by PG&E in its PEA, or evaluated by the California Independent System Operator (ISO) in its Stakeholders process that has been studying the San Francisco and Peninsula electricity supply. In total, approximately 30 alternatives were identified that range from minor routing adjustments to PG&E's proposed 230 kV project location, to entirely different transmission line routes, to alternative energy technologies, as well as non-wires alternatives.

Alternatives to the Proposed Project were screened according to CEQA guidelines to determine those alternatives to carry forward for analysis in the EIR and alternatives to eliminate from detailed consideration. The alternatives were primarily evaluated according to: (1) whether they would meet most of the basic project objectives; (2) whether they would be feasible considering legal, regulatory and technical constraints; and (3) whether they have the potential to substantially lessen any of the significant effects of the Proposed Project. Other factors considered, in accordance with CEQA Guidelines (CEQA Guidelines Section 15126.6(f)), were site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, jurisdictional boundaries, and proponent's control over alternative sites. Economic factors or costs of the alternatives (beyond economically feasible) were not considered in the screening of alternatives since CEQA Guidelines require consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may "impede to some degree the attainment of project objectives or would be more costly" (CEQA Guidelines Section 16126.6(b)).

The detailed results of the alternatives screening analysis are contained in Appendix 1 of the EIR (Alternatives Screening Report). A summary description of the alternatives considered and the results of screening are provided below. Figures ES-2a through ES-2c illustrate the geographic locations of all alternatives considered for EIR analysis.

2.1 Alternatives Fully Evaluated in the EIR

Transmission Line Route Alternatives – Southern Segment

PG&E Underground Route Option 1B

Alternative Description. This alternative is an all-underground option that would be entirely with roadways, following Cañada Road and Skyline Boulevard along the I-280 corridor, turning east into Trousdale Boulevard and then north into El Camino Real, rejoining the proposed route at El Camino Real and San Bruno Avenue. Options for crossing Crystal Springs Dam include an underwater cable around the dam, an overhead crossing of the dam, and several options for attaching the cable to the dam itself.

Rationale for Full Analysis. Feasible and would meet all project objectives. Potential to reduce or avoid significant environmental impacts to visual, recreational, and biological resources, and to reduce seismic risk and EMF near residences.

Figure ES-2a. Overview of All Alternatives, Southern Segment
For security reasons this figure is not included in the online version of the report.

Figure ES-2b. Overview of All Alternatives, Northern Segment
For security reasons this figure is not included in the online version of the report.

Figure ES-2c. Alternatives Outside of San Mateo County

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Partial Underground Alternative

Alternative Description. This southern segment alternative follows most of the existing corridor and includes a combination of overhead and underground segments to minimize impacts on several sensitive areas. It includes two rerouted overhead segments (the first to avoid Edgewood Park and the Pulgas Ridge Preserve, and the second to avoid proximity to residences in the City of Burlingame). It also includes an underground segment between the Ralston and Carolands Substations to minimize impacts on adjacent residences in the San Mateo Highlands and the Town of Hillsborough, with an overhead crossing of San Mateo Creek. This alternative would eliminate two crossings of I-280 because it would remain west of the freeway north of Carolands Substation.

Rationale for Full Analysis. Eliminates the existing and proposed transmission line through Edgewood Park, which contains unique and valuable habitat, and the Pulgas Ridge Preserve. Eliminates two overhead crossings of I-280 and most visual impacts near residential areas. Feasible and meets all project objectives.

Transmission Line Route Alternatives – Northern Segment

West of Skyline Boulevard Transition Station Alternative

Alternative Description. This alternative transition station would be located west of Skyline Boulevard, on the SFPUC Watershed Lands southwest of the corner of San Bruno Avenue and Skyline Boulevard. After the transmission line transitions from overhead to underground, the underground line could follow three different underground routes (all would be in roads): (a) north in Skyline Boulevard to San Bruno Avenue to join the Proposed Project route; (b) north Skyline Boulevard to Sneath Lane, east on Sneath to the BART ROW (or into Tanforan Drive if joining the Modified Existing 230 kV Underground Alternative); or (c) north on Skyline Boulevard for 2.1 miles to Westborough Boulevard, then turning east to either Junipero Serra Boulevard or the BART ROW.

Rationale for Full Analysis. Meets all of the stated objectives of the Proposed Project and is feasible. Because of greater distance within the A-P Zone, the transition station with any of the three routes has a greater potential for earthquake damage to the underground segment, but the seismic issues associated with this alternative are similar to those of the Proposed Project, so it is considered feasible.

Eliminates the visual and land use impacts of the proposed transition structure. Avoids conflict with the proposed trailhead-parking project. Avoids impacts to a planned residential development east of Glenview Drive, and is farther from sensitive land uses. Use of Sneath Lane or Westborough Boulevard would avoid the proposed grade separation project at Huntington Drive and San Bruno Avenue.

Sneath Lane Transition Station Alternative

Alternative Description. This alternative site would co-locate the new transition station next to an existing PG&E Sneath Lane Substation, 0.6 miles north of San Bruno Avenue. The same three underground route options could be here as with the West of Skyline Transition Station Alternative: the Proposed Project route down San Bruno Avenue, the Sneath Lane route, and the Westborough Boulevard route.

Rationale for Full Analysis. Meets all of the stated objectives of the Proposed Project and is considered feasible. Eliminates the visual impacts and land use conflicts associated with the proposed transition station site. Collocated adjacent to an existing utility substation. Use of Sneath Lane or Westborough Boulevard would avoid the proposed grade separation project at Huntington and San Bruno Avenue. Determined feasible but the same seismic issues as the West of Skyline Boulevard transition station due to the similar required crossing of the San Andreas Fault zone.

Cherry Avenue Alternative

Alternative Description. This alternative route in the City of San Bruno would diverge from the Proposed Project route at the intersection of San Bruno Avenue and Cherry Avenue, follow Cherry Avenue to Sneath Lane, and continue to the BART ROW where it would rejoin the Proposed Project.

Rationale for Full Analysis. Meets the project objectives and is feasible. Avoids the proposed Huntington Drive grade separation project.

Modified Underground Existing 230 kV Collocation Alternative and New South San Francisco Segment

Alternative Description. This alternative would use a portion of the route of PG&E's existing underground 230 kV transmission line through San Bruno and Brisbane, but would follow a new route segment through South San Francisco and adjacent cities to avoid several very congested utility areas. Starting at San Bruno Avenue and Huntington Avenue, the route would follow San Bruno Avenue east; turn north into PG&E's 115 kV overhead line corridor just east of 7th Avenue; then turn into 7th Avenue, past I-380 where 7th Avenue becomes Shaw Road. It would proceed north on Shaw to Produce Avenue, turning east (crossing Highway 101) in Airport Boulevard, and north into Gateway Boulevard. From the end of Gateway Boulevard, the route would follow the eastern edge of the railroad ROW to Sierra Point Parkway, where it would cross Highway 101 into Van Waters and Rogers Road (private), and join Bayshore Boulevard, continuing into the Martin Substation.

Rationale for Full Analysis. Meets project objectives and is feasible. Offers a reduction in impacts associated with the Proposed Project in that it is much shorter, and it avoids crossing San Bruno Mountain. Avoids impacts to schools and residences in the Cities of San Bruno, South San Francisco, Colma, and Daly City.

PG&E's Route Option 4B: East Market Street Alternative

Alternative Description. This short alternative would avoid the Hoffman and Orange Street segment of the Proposed Project by continuing north on Hillside (past Hoffman) into East Market Street, where it would rejoin the proposed route at Orange Street and East Market.

Rationale for Full Analysis. Meets all project objectives and is feasible. Reduces or avoids construction impacts and EMF concerns for residences along the proposed route. Short-term construction impacts along the busier streets would be mitigable with effective traffic control. Alternative streets are wider, allowing implementation of EMF mitigation by placing the line across the street from the school and/or by deeper burial of the line.

Junipero Serra Alternative

Alternative Description. This alternative would start at Skyline Boulevard and Westborough Boulevard in the City of South San Francisco, then turn north into Junipero Serra Boulevard into the Town of Colma, and east into Serramonte Boulevard to Hillside, where it would rejoin the Proposed Project route.

Rationale for Full Analysis. Meets all project objectives and is feasible. No space constraints associated with existing utilities in Town of Colma. Colma would likely be able to plan its phased road improvement project around this alternative. Passes one school, but would avoid impacts to Town of Colma newly paved roadways. Short-term construction impacts on Junipero Serra Boulevard and Serramonte Boulevard, but fewer construction effects than for the Proposed Project.

No Project Alternative

In addition to the route alternatives described above, the EIR evaluates the No Project Alternative, in accordance with CEQA requirements. CEQA Guidelines [Section 15126.6(e)], state that the No Project Alternative must include (a) the assumption that conditions at the time of the Notice of Preparation (i.e., baseline environmental conditions) would not be changed since the Proposed Project would not be installed, and (b) the events or actions that would be reasonably expected to occur in the foreseeable future if the project were not approved.

Under the No Project Alternative, other actions by PG&E or other entities would need to compensate for existing system limitations if the anticipated load growth occurs. If neither the Proposed Project nor any alternative were approved by the CPUC, and predicted load growth occurs, PG&E and the ISO would need to evaluate alternative courses of action that could be implemented to prevent electricity shortages in the San Francisco and Peninsula areas. This alternative includes the following components:

- **New generation** – There is significant uncertainty associated with approval and construction of new generation facilities in the CCSF, but given the apparent CCSF support for installation of the Williams turbines (and given the ISO’s indication that operation of these turbines, with other system improvements, would allow closure of HPPP Unit 4), it seems likely that these turbines will be installed.
- **PG&E system upgrades** would occur, including rerating and upgrading of certain transmission lines, and installation of a new transformer would improve system reliability and service.
- **PG&E system improvements** would be made, including the conversion of San Mateo–Martin #4 from 60 kV to 115 kV and the installation of a Potrero-Hunters Point 115 kV underground cable.
- **System management and planning** – PG&E and the ISO would continue to implement an Interruptible Load Program (allowing the selective load dropping during peak load periods), demand-side management would be encouraged, and curtailment of electric service would be required in the worst-case demand growth scenarios.

2.2 Alternatives Eliminated From Further Consideration

The alternatives listed below were evaluated for their potential to meet CEQA requirements but were ultimately eliminated from consideration in the EIR. Figure ES-2 depicts the location of each alternative addressed in this section. A more detailed description of each alternative and the rationale for its consideration and elimination is presented in Draft EIR Appendix 1, Alternatives Screening Report.

Transmission Line Route Alternatives — Southern Segment

PG&E’s 1B with Underground 60 kV Line

Alternative Description. The route of this alternative would be exactly the same as PG&E’s Route Option 1B (described above): underground in Cañada Road, Highway 92, Skyline Boulevard/Highway 35, Trousdale Drive and El Camino Real. However, in this alternative, the single-circuit 60 kV line would be undergrounded as well as the 230 kV line, so construction would include removing the existing 60 kV towers.

Rationale for Elimination. This alternative is in conflict with CEQA law due to the required relocation of the 60 kV circuit from the existing corridor to the separate underground ROW. This suggested alternative that would include placing both the proposed 230 kV line and the existing 60 kV line underground along a new alignment is not considered to be within CEQA’s required “reasonable range of

alternatives,” and therefore cannot be evaluated for full analysis in the EIR. While undergrounding of only the proposed 230 kV line along an alternate route is a legitimate, potentially feasible alternative, the relocation of the existing 60 kV line to such a new route is not a permissible alternative under CEQA Guidelines. Legal standards require that there be an essential connection or relationship between an alternative and a legitimate lead agency interest dealing with a proposed project, and that an alternative be “roughly proportional” in nature and scope to the impacts of the Proposed Project. Since the impacts of the Proposed Project stem solely from construction of a new 230 kV line, and not from the existing 60 kV line, the relocation of the existing 60 kV line to a wholly new alignment cannot reasonably be required by the CPUC. The legal feasibility issues are defined in greater detail in Appendix 1. For these reasons, this alternative was not considered further in the screening process and is not considered for EIR analysis.

Alternatives to Trousdale Drive: Existing Millbrae 60 kV ROW Alternative

Alternative Description. This alternative would diverge from the Skyline corridor at about MP 11.6, following the existing overhead Millbrae 60 kV corridor in a narrow ROW through steep hillsides in residential areas and past several schools near Tioga Drive before traveling down the hill through open space and meeting Richmond Drive east to El Camino Real. The route would turn north onto El Camino Real and rejoin the proposed route at El Camino Real and San Bruno Avenue.

Rationale for Elimination. Construction of an underground transmission line in the existing 60 kV ROW is not considered feasible due to the narrow existing easement, engineering issues with the steep hillside, and the presence of immediately adjacent residential properties.

Alternatives to Trousdale Drive: SFPUC Water Facility ROW Alternative

Alternative Description. This route would follow the existing SFPUC water pipeline ROW from the Skyline corridor, through the Cities of Millbrae, San Bruno, and South San Francisco where it would join the proposed or an alternative alignment. This alternative would diverge from the Proposed Route at Tower 12/82, following the existing SFPUC water pipeline ROW north-northeast to San Bruno Avenue, Sneath Lane, Junipero Serra Boulevard, or Serramonte Boulevard.

Rationale for Elimination. Use of the SFPUC easement would not be allowed by the SFPUC so it is infeasible for regulatory/permitting reasons.

West of Existing Corridor, East of I-280 Alternative

Alternative Description. This 3.1-mile alternative from Ralston Substation to just north of Hayne Road would relocate both the 230 and 60 kV lines to the west to increase their distance from residences, remaining east of I-280 and on the SFPUC Peninsula Watershed.

Rationale for Elimination. The alternative would be infeasible because required permits could not be obtained within a reasonable period of time. Creates significant impacts to rare and valuable biological resources in sensitive serpentine grasslands, requiring Section 7 consultation and review. Conflicts with the SFPUC’s Watershed Management Plan and the NPS’ scenic and recreational easement.

West of Reservoirs Alternative

Alternative Description. This alternative would require construction of an underground 230 kV line or new 230 kV overhead towers to the west of the Crystal Springs Reservoirs and San Andreas Lake (on Peninsula Watershed lands), replacing nearly the entire southern segment of the proposed route. The 60 kV line would remain unchanged with this alternative.

Rationale for Elimination. Due to biological and cultural survey requirements, this alternative would not meet the objective of meeting electrical demand within the necessary timeframe of September 2005 or summer 2006. Establishes a new utility corridor in addition to the existing 60 kV line through undeveloped Watershed Lands, and conflicts with Watershed Management Plan WA6. Creates much greater impacts to biological, cultural, and visual resources.

Underwater Cable Alternative Segments to PG&E Route Option 1B

Alternative Description. PG&E proposed three possible route options for an Underwater Cable Alternative that would avoid crossing Crystal Springs Dam (and associated effects on biological and cultural resources). The first option would require about 3,000 feet of cable and is considered a feasible option to allow Route Option 1B to cross the dam. The second underwater cable option would be over 9,200 feet long, ending near the southern end of the Lower Crystal Springs Reservoir. The third option would use over 12,000 feet of cable, following Lower Crystal Springs Reservoir, boring through the old Crystal Springs Dam (supporting Highway 92) to Upper Crystal Springs Reservoir, then exiting the reservoir on the eastern shore after traveling about half of the reservoir's length. Once out of the reservoirs, each of these options would continue along the PG&E Route Option 1B Alternative route.

Rationale for Elimination. The second and third options are eliminated from detailed EIR analysis. Presents potential inconsistencies with the Peninsula Watershed Plan and Caltrans permitting concerns. Long-term reliability of the underwater cable at 230 kV is uncertain since this high a voltage has never before been installed. Long-term security of underwater cable splices at the depth of the reservoirs is not guaranteed, so it is not considered to be technically feasible at this time.

Transmission Line Route Alternatives — Northern Segment

I-280 Northbound Ramp Alternative

Alternative Description. This underground alternative would diverge from the Proposed Project at the entrance/exit ramp of I-280 along San Bruno Avenue, proceed north adjacent to the northbound ramp to Sneath Lane, then east in Sneath Lane to the BART ROW where it would rejoin the proposed route within the City of San Bruno boundaries.

Rationale for Elimination. Significant regulatory feasibility issues in acquiring a variance from Caltrans and using the I-280 off-ramp. Does not lessen any significant impacts of the Proposed Project; it simply re-locates them from San Bruno Avenue to Sneath Lane.

PG&E's Route Option 2A, El Camino North Alternative

Alternative Description. This underground alternative would diverge from the proposed route at the intersection of El Camino Real and San Bruno Avenue, turning north in El Camino Real for about 3.7 miles to Lawndale/McLellan Drive, rejoining the proposed route at that corner.

Rationale for Elimination. Using El Camino Real, a heavily used commercial highway, would create substantially greater construction impacts than the Proposed Project, which follows the BART ROW.

PG&E's Route Option 3B, BART North Alternative

Alternative Description. This underground alternative would diverge from the Proposed Project route by staying in the BART ROW, rather than turning east into Lawndale/McLellan. It would remain in the BART ROW to Serramonte Boulevard, turning east to the corner of Serramonte and Hillside. It would reduce construction, traffic and EMF concerns along Hillside and Lawndale/McLellan,

Rationale for Elimination. This alternative would create greater overall significant impacts from construction and traffic impacts to commercial properties along Serramonte Boulevard. Disturbs the historic funeral home/cemetery located just east of El Camino Real in Colma. The Proposed Project impacts to El Camino High School can be mitigated by relocation of the proposed transmission line within McLellan Drive.

Mission/El Camino Real to A Street Alternative

Alternative Description. This underground alternative route would follow Mission Road/El Camino Real from Serramonte to A Street, turn east onto A Street and north onto Hillside Boulevard to Market Street, turn east on Market Street and rejoin the proposed route at the intersection of Orange Street and East Market Street.

Rationale for Elimination. Moves the impacts to other streets where impacts would be the same or greater. A Street is very narrow and would result in location of the line in a residential area, creating construction traffic disturbance and EMF concerns.

San Bruno Mountain Collocation Alternative

Alternative Description. This alternative route would follow the same route as the Proposed Project over San Bruno Mountain along the western portion of Guadalupe Canyon Parkway but would diverge from the proposed route by turning north and following the existing overhead 60 kV utility corridor into the Martin Substation. This alternative would also require undergrounding the existing overhead power lines that traverse the northern face of San Bruno Mountain.

Rationale for Elimination. Similar to PG&E's 1B with Underground 60 kV Line described in Section C.5.2.1 above, this suggested alternative would not be legal under CEQA Guidelines. Placing both the proposed 230 kV line and the existing power lines underground in the power line easement over a portion of San Bruno Mountain is not considered to be within CEQA's required "reasonable range of alternatives" and therefore this cannot be evaluated in the EIR. The relocation of the existing lines (which have no relation to the Proposed Project) to an underground route as part of the Proposed Project is not a permissible alternative. See Appendix 1, Section 4 for a more in-depth discussion of the legal feasibility conclusion.

The Proposed Project involves the construction of a new 230 kV transmission line. The existing lines are already in place, and thus is part of the environmental setting against which environmental impacts are judged. The impacts of the Proposed Project do not include the effects of activities already occurring or facilities already in existence, such as the existing transmission and power lines. The 230 kV line could be installed over San Bruno Mountain without affecting the existing power and transmission lines in any way.

In explaining the "rule of reason" by which alternatives are selected for evaluation, CEQA Guidelines section 15126.6(f) states, "The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project." Because "the project" includes only the 230 kV line, and the effects of the project are limited to the impacts associated with the proposed 230 kV line, appropriate alternatives must be limited to those that could avoid or lessen the effects of the 230 kV transmission line. CEQA does not permit the lead agency to try and "fix" or improve the existing environmental setting (i.e., in this situation, to relocate the existing overhead lines to an underground location) using a proposed change to the environment as a hook. This alternative was not analyzed or carried through the tiering analysis since it is not a permissible alternative under CEQA Guidelines.

Other Transmission Alternatives

San Mateo Substation to Martin Substation

Alternative Description. This alternative would consist of a new 230 kV underground cable constructed between San Mateo and Martin Substations following PG&E's existing 230 kV underground route near Highway 101. From the San Mateo Substation, it would cross the Coyote Point Recreation Area to the Highway 101 corridor, then parallel Highway 101 along Airport Boulevard/Old Bayshore Highway. It would be within El Camino Real for 1.3 miles, then turn east for two blocks and then north into San Antonio/Huntington Avenues to Herman Street, into Linden Avenue and Baden Avenue, then north into Bayshore Boulevard to the Martin Substation. At 14.3 miles, this alternative would have the shortest overall transmission line route of those considered.

Rationale for Elimination. No net reliability benefit because it still originated at the San Mateo Substation. Does not connect Jefferson Substation to Martin Substation; therefore it would not satisfy the fourth project objective. Feasibility concerns related to the availability of adequate space within the city streets, given that the existing 230 kV transmission line is already located there and there are also other underground utilities. Cultural resource impacts may be greater than for the Proposed Project, because areas nearer to the San Francisco Bay have greater sensitivity from past land uses. Potential for encountering contamination would be greater.

Moraga Substation to Potrero or Embarcadero Substations

Alternative Description. In this "cross-bay" alternative, an approximately 20-mile 230 kV circuit would be constructed to connect PG&E's Moraga and Potrero Substations using an existing overhead transmission corridor from Moraga Substation (in Contra Costa County) to Claremont Substation (Oakland) where the overhead route would transition to underground. From Claremont Substation the underground line would follow the following streets: Broadway, Shafter, Forest, Claremont, Telegraph, and 40th Street. It would then follow Emery Street and Peralta Street to 7th Street, which would be followed to the San Francisco Bay.

There are four options for crossing the San Francisco Bay: (a) run the cable through the BART service tunnel; (b) hang the cables from the Bay Bridge (new bridge in east half; existing bridge in west half); (c) install a submarine cable across the Bay; or (d) use a combination of hanging on the Bay Bridge and a submarine cable. Within the CCSF after the Bay crossing, the route would travel 3.3 miles south along The Embarcadero, turn west onto King Street, southwest onto 3rd Street, and south onto Illinois Street to the corner of 23rd Street. Potrero Substation is located at 23rd Street and Illinois Street. The option terminating at Embarcadero Substation would end at First and Folsom Streets.

Rationale for Elimination. PG&E has stated that it is not technically feasible to add another 230 kV line to the Embarcadero Substation, so this substation option was eliminated. The Moraga-Potrero Alternative would be regulatorily infeasible due to the likely inability to obtain permission to construct from BCDC, Caltrans, or BART (the three agencies with jurisdiction over bay crossing options) within a reasonable period of time. The following constraints were identified to the bay crossing options:

- **Submarine Cable Crossing.** The U.S. Army Corps of Engineers has stated that a bay crossing would be feasible according to its regulations but that installation would have to allow dredging operations. An electric cable installed across the San Francisco Bay would also require a permit from the Bay Conservation and Development Commission (BCDC), which must consider whether a feasible upland alternative exists to avoid a bay crossing. Because other alternatives clearly exist, the BCDC would be unlikely to permit a bay crossing in a reasonable period of time within the project objective time-frame (BCDC, 2003).

- **Bay Bridge Crossing.** If the Bay Bridge were used to support the line, the crossing would require that Caltrans grant an exception to its longitudinal encroachment policy, which is considered to be unlikely. Also, the timeline and coordination with the Bay Bridge Retrofit Project could conflict with this project.
- **Installation of Cable within Existing BART Tunnel.** According to BART staff, it would be technically possible to install a high voltage line in one of the BART tunnels, but there are serious BART concerns about loss of needed space in tunnels and about safety risks created.

Sobrante Substation to Potrero or Embarcadero Substations

Alternative Description. This route would start at PG&E's Sobrante Substation in Contra Costa County, traveling south for approximately 3.3 miles to join the Moraga line just north of the City of Orinda. From that point the route would turn west and would be identical to the Moraga route described above.

Rationale for Elimination. The feasibility concerns related to this alternative are the same as those for the Moraga to Potrero Alternative. Due to the infeasibility of the Bay crossing, this alternative was eliminated from full analysis in this EIR.

Jefferson to Various Substations

Alternative Description. The routes considered in this alternative would be the same as the Proposed Project through San Mateo County but would terminate north of Martin Substation in the CCSF. This alternative includes potential termination points at four PG&E Substations: Hunters Point Substation, Potrero Substation, Embarcadero Substation, Bayshore Substation, and Mission Substation. Only the Jefferson to Potrero/Hunters Point option is feasible because of space constraints.

Rationale for Elimination. Mission, Embarcadero, and Bayshore Substations are infeasible due to space constraints. None of the substations analyzed in this alternative would reduce or avoid significant impacts of the Proposed Project, but rather there would be increased construction disturbance due to the greater length of these routes.

Non-Wires Alternatives

New Generation Alternatives: Potrero Unit 7 or San Francisco Williams Turbines

Alternative Description. Mirant Corporation filed an Application for Certification (AFC) with the California Energy Commission (CEC) on May 31, 2000 for the proposed Potrero Unit 7 project, a 540 MW natural gas-fired, combined cycle power generating facility in San Francisco. CEC staff's Final Staff Assessment was completed in February 2002 and recommended that the Energy Commission license the Potrero Power Plant Unit 7 Project with mitigation that included replacement of the proposed once-through cooling system with an alternative cooling system and air quality mitigation to reduce local diesel emissions from buses and trucks. In May 2003, Mirant stated that it would file an AFC amendment to propose use of hybrid cooling and eliminate the previously proposed once-through cooling system. Other concerns about the effects of Potrero Unit 7 relate to public health, safety, and environmental justice due to visual impacts, emissions, and noise from operation of the power plant in an area of disproportionate minority population.

Another option for new generation in the CCSF would be use of four 45 MW gas turbines to be provided to the CCSF by the Williams Energy Company. The City expects to file an Application for Certification with the CEC, the CEQA lead agency, by the end of 2003. The City expects the generators could be operational in 2005 (preliminary schedule).

Rationale for Elimination. The new generation alternatives have not been approved, and there is no guarantee that they will be approved. If approved, construction would take at least two years, so these alternatives could not meet the objective of meeting electric demand in 2005/2006. Also, construction of either power plant would likely allow retirement of the Hunters Point Power Plant, so the net benefit to the San Francisco Peninsula would be greatly reduced.

These power plant alternatives do not connect the Jefferson and Martin Substations, so they do not satisfy the fourth project objective. There are regulatory feasibility constraints to project(s) approval. While these constraints with Potrero Unit 7 have been primarily related to the previously proposed once-through cooling system, it remains to be seen what other issues may arise from evaluation of the new cooling system proposal. There may be siting constraints associated with placing the Williams turbines in the CCSF.

Renewable Resource Alternatives: Solar, Wind, and Tidal Technologies

Alternatives Description. The principal renewable electricity generation technologies are wind, solar, and tidal energy. In all cases, large amounts of land or underwater habit would be required to meet the project objectives. Transmission of the power generated by these technologies would also be required.

Rationale for Elimination. Except for increasing diversity, renewable resource alternatives do not meet the stated project objectives. There are reliability concerns with wind and solar technology because of the need for a consistent wind or solar source. The extensive land required to generate enough wind or solar electricity to meet demand is not available in the project area, and new transmission would be required from an out-of-area source, creating biological, visual, land use, and cultural impacts similar to those of the Proposed Project. Tidal technology is not yet a feasible technology on the scale required to replace the Jefferson-Martin project. There are substantial cost and regulatory hurdles to overcome before they can provide substantial amounts of power.

System Enhancement Alternatives: Distributed Generation and Demand-side Management

Alternatives Description. Distributed Generation (DG) is defined as “generation, storage, or demand-side management devices, measures, and/or technologies connected to the distribution level of the transportation and distribution grid, usually located at or near the intended place of use” and could include technologies including microturbines, internal combustion engines, combined heat and power (CHP) applications, fuel cells, photovoltaics and other solar energy systems, wind, landfill gas, digester gas and geothermal power generation technologies. To the extent that it is established, DG either can act to reduce the load on the PG&E system or can be applied as additional system generation.

Demand-side management programs are designed to reduce customer energy consumption. Regulatory requirements dictate that both supply-side and demand-side resource options should be considered in a utility's plan to acquire lowest cost resources. One goal of these programs is to reduce overall electricity use. Some programs also attempt to shift such energy use to off-peak periods.

Rationale for Elimination. DG would not provide a means for PG&E to meet its objectives for the project because of the comparatively small capacity of DG systems and the relatively high cost. A number of serious barriers, including technical issues, business practices, and regulatory policies, make interconnection to the electrical grid for small generators difficult. Broad use of distributed resources would likely require regulatory support and technological improvements. Lengthy local permitting processes would make it unlikely to construct sufficient quantities of DG within the timeframe required for the Proposed Project.

Integrated Resource Alternatives

Alternatives Description. An integrated resources alternative could be made up of several components, rather than consideration of only a single transmission line project. Taken together and if implemented, they would diversify the system and would add needed capacity. The components could include a combination of demand-side management, transmission system upgrades, development of solar power and other renewables, distributed generation, and new generating facilities or cogeneration facilities. This type of integrated resources planning is being implemented by the CCSF, with the combination of its Electricity Plan and the Williams turbines discussed above.

Rationale for Elimination. Despite aggressive planning efforts by the CCSF, even if implemented by the 2005 to 2006 timeframe, these options would not supply sufficient power (or energy savings) to allow elimination of the Jefferson-Martin Project. This alternative does not connect Jefferson Substation to Martin Substation, and therefore does not satisfy the fourth project objective. The configuration of the options implemented would determine overall effects of this alternative. Each of these components is technically feasible, and each could be implemented on a limited scale in CCSF and northern San Mateo County. However, each also has environmental and regulatory obstacles to their implementation. The combination of these alternatives would have no fewer obstacles than they would individually.

3. Environmental Impacts and Mitigation Measures

Impact Assessment Methodology. The analysis of environmental impacts is based upon the environmental setting applicable to each resource/issue and the manner in which the construction, operation and maintenance of the Proposed Project or alternatives would affect the environmental setting and related resource conditions. In accordance with CEQA requirements and guidelines, the impact assessment methodology also considers the following three topics: (1) the regulatory setting, and evaluates whether the Proposed Project or alternatives would be consistent with adopted federal, State and Local regulations and guidelines, (2) growth-inducing impacts, and (3) cumulative impacts. Regulatory compliance issues are discussed in each resource/issue area section. The EIR document is organized according to the following major issue area categories:

- Land Use
- Visual Resources
- Biological Resources
- Cultural Resources
- Geology, Soils, and Paleontology
- Hydrology and Water Quality
- Public Health & Safety
- Recreation
- Air Quality
- Noise
- Transportation & Traffic
- Socioeconomics
- Public Services & Utilities

In order to provide for a comprehensive and systematic evaluation of potential environmental consequences to the resource/issue areas, the environmental impact assessments for the Proposed Project and alternatives are based upon a classification system, with the following four associated definitions:

Class I: Significant impact; cannot be mitigated to a level that is not significant

Class II: Significant impact; can be mitigated to a level that is not significant

Class III: Adverse impact, less than significant

Class IV: Beneficial impacts

In a number of instances, PG&E has proposed measures to reduce impacts to potentially affected resources or areas. These types of actions are termed ‘Applicant-Proposed Measures’ in the EIR and are considered in the impact assessment as part of PG&E’s Proposed Project description. As such, these measures are different from CEQA mitigation measures, described below.

Mitigation Measures. The EIR describes feasible measures that could minimize significant adverse impacts (CEQA Guidelines Section 15226.4). Within each issue area, mitigation measures are recommended where environmental effects could be substantially minimized. Since some reviewing agencies require a demonstration of reduction of impacts to the maximum extent possible, mitigation measures have been identified for all classes of impacts (except beneficial impacts). The mitigation measures recommended by this study have been identified in the impact assessment sections of the EIR and are presented in Mitigation Monitoring Program tables at the end of the analysis for each resource/issue area.

The major findings of the EIR analysis are summarized below according to resource issue area. Regulatory issues pertinent to each resource are identified, along with a summary of the primary Class I (significant, unmitigable) and Class II (significant, mitigable) impacts that would be expected from the construction and operation of the Proposed Project. Comparative effects of the alternatives are also provided. Impact findings and mitigation measures for the Proposed Project and alternatives are summarized in Tables ES-4 and ES-5, at the end of this Executive Summary.

3.1 Land Use

3.1.1 Proposed Project

Overhead Segment. The analysis finds that the overhead portion of the Proposed Project would conflict with San Mateo County General Plan policies related to biological resources and visual quality, and would conflict with the County’s Tree Preservation Ordinance and Heritage Tree Ordinance, the SFPUC’s Watershed Plan, and the NPS easements. The proposed transition station site in the City of San Bruno would also conflict with future development planned for that site. Other land use impacts would be related to construction disturbances because there is a potential for construction activities and staging areas to disrupt maintenance activities on SFPUC Watershed Lands or cause a temporary nuisance in nearby residential areas.

Mitigation measures identified in the analyses for Biological Resources would mitigate the impacts related to San Mateo County policy conflicts, but significant visual impacts would create policy conflicts. To mitigate the potential impact on SFPUC maintenance activities and nearby residences, PG&E would be required to coordinate construction activities on Watershed Lands with the SFPUC and provide advance notification of affected property owners of work. Other mitigation would provide a complaints coordinator, with procedures to be established for responding to complaints. For disrupted access, PG&E would be required to lay a crossing trench upon demand when alternative access is unavailable, and to provide alternative parking arrangements for businesses with off-street parking lots that would be blocked during construction. With these mitigation measures, these would be adverse but not significant land use impacts relating to an underground crossing of the San Andreas Fault creating a seismic and reliability risk.

The only approach available to mitigate the land use conflict created by the proposed transition station would be to select one of the alternative transition station locations. The proposed transition station site creates a significant and unmitigable impact.

Underground Segment. Construction disturbances would also occur to residences, businesses, and schools throughout the underground portion of the alignment. Trench construction could also create

temporary disruptions in access to properties or require minor detours, though it is not anticipated that access would be precluded at any location. The mitigation measures identified for the overhead segment would be applicable to the underground segment. With the mitigation measures, the land use impacts for the underground segment would be reduced to a level that would not be significant.

3.1.2 Alternatives

Southern Segment Alternatives

Route Option 1B. This all-underground alternative segment would avoid conflicts with San Mateo County tree ordinances and visual quality policies and would substantially reduce the conflicts with the County's biological resources policies that are identified for the Proposed Project. It would also avoid the potential conflict with SFPUC maintenance activities because it would be located entirely within paved roadways. Construction impacts would be greater than those of the Proposed Project because of the continuous trenching in roadways; however, much of this activity would not be near residences or other sensitive receptors. This alternative would eliminate the significant impact related to the transition station site since it would be entirely underground and would connect to the proposed route at El Camino Real and San Bruno Avenue. With measures similar to those identified for the Proposed Project, all other land use impacts could be reduced to a level that would be less than significant.

Partial Underground Alternative. The Partial Underground Alternative would reduce conflicts with local visual quality policies, but this benefit would be offset by greater biological impacts for the underground work. With measures similar to those identified for the Proposed Project, all land use impacts, except for the impact related to the proposed transition station, could be reduced to a level that would be less than significant. This alternative would not eliminate the significant impact related to the transition station site since, like the proposed route it would extend to San Bruno Avenue and Skyline Boulevard.

Northern Segment Alternatives

Because all of the Northern Area alternatives would be entirely underground, they would have the same types of impacts identified for the Proposed Project, with variations in degree of construction impacts. Because most of the northern segment alternatives were developed to avoid impacts to adjacent and established land uses, they would generally result in reduced construction impacts in comparison to the Proposed Project.

West of Skyline Transition Station Alternative (with all route alignments). The West of Skyline Transition Station would avoid the conflict with planned future development that was identified for the proposed transition station; however, impacts to Peninsula Watershed and San Mateo County policies related to biological resources and visual quality would occur, as would impacts related to tree ordinances. With measures identified for the Proposed Project, all land use impacts could be reduced to a level that would be less than significant.

Sneath Lane Transition Station Alternative (with all route alignments). The Sneath Lane Transition Station would avoid the conflict with planned future development that was identified for the proposed transition station, and it would minimize impacts related to the land use compatibility because the transition station would be adjacent to the Sneath Lane Substation. With measures identified for the Proposed Project, all land use impacts could be reduced to a level that would be less than significant.

Cherry Avenue Alternative. By avoiding businesses that would otherwise be affected by disruptions or nuisances during construction, this alternative would minimize impacts to adjacent land uses. With mitigation, all land use impacts would be less than significant.

Modified Existing 230 kV Alternative. This alternative would result in a new land use impact not identified for the Proposed Project, disrupting the use of a large commercial long-term parking lot in South San Francisco used by air travelers flying out of San Francisco International Airport. PG&E would need to compensate the parking lot owner for lost income to mitigate this impact. The Modified Existing 230 kV alternative would also result in similar construction-related impacts to those identified for the Proposed Project, though it would result in an overall reduced degree of disturbance given that it is nearly four miles shorter than the Proposed Project's underground segment. With mitigation, all land use impacts would be less than significant.

Route Option 4B: East Market Street Alternative. By avoiding residences that would otherwise be affected by disruptions or nuisances during construction, this alternative would minimize impacts to adjacent land uses. With mitigation, all land use impacts, including impacts to nearby schools, would be less than significant.

Junipero Serra Alternative. By avoiding a substantial number of properties that would otherwise be affected by disruptions or nuisances during construction, this alternative would minimize impacts to adjacent land uses. With mitigation, all land use impacts would be less than significant.

No Project Alternative

Construction of new generation and transmission system upgrades would create noise, dust, and traffic disturbance to nearby land uses. If electric service were curtailed, existing land uses (including residential, commercial, and industrial uses) would incur inconvenience, at the least, and possible financial losses with potential effects on future area growth.

3.2 Visual Resources

3.2.1 Proposed Project

Overhead Segment. The overhead segment of the Proposed Project would be located in highly scenic corridor along I-280, with extended views of the Coast Range and the SFPUC's water storage reservoirs. Visual impacts from transmission facilities represent long-term changes to the aesthetic environment where overhead facilities are proposed. Because there is an existing 60 kV power line in the corridor where the Proposed Project would be constructed, impacts are assessed in terms of the incremental increase in visual impact that would be created by the Proposed Project. Installation of the overhead portion of the Proposed Project would result in the long-term visibility of larger transmission structures, increasing the industrial character to the existing landscape. Of the 18 key viewpoints that were established along the overhead portion of the Proposed Project, five would be exposed to significant, unmitigable visual changes. These significant impacts would occur at Edgewood County Park, from the I-280 southbound vista point, which has a panoramic view of the area, and from residential areas that line the eastern edge of the corridor (the San Mateo Highlands and areas of the Town of Hillsborough and City of Burlingame). In addition, the proposed transition station at the west end of San Bruno Avenue is identified as a significant visual impact due to its introduction of industrial character and prominent structures to a scenic corridor with nearby residential and recreational use.

Potentially significant visual changes are identified at 8 other key observation points. In these areas mitigation measures are recommended to would reduce impacts to less than significant levels. Mitigation measures include the identification of specific locations where the elimination and/or relocation of specific towers would reduce visibility of the transmission line, recommended painting of towers with appropriate colors that would blend with the immediate surroundings, and use of steel poles rather than

lattice towers (as proposed by PG&E). Mitigation of construction impacts would be accomplished through screening of construction activities from nearby residences with temporary screening fencing. Mitigation in the form of additional vegetative screening is also recommended for the proposed transition station, although this mitigation would not eliminate the significant impact of the structure.

The Proposed Project would also cause short-term visual impacts associated with the visibility of project construction equipment, materials, and personnel as well as construction staging areas. However, due to the relatively short duration of project construction, these impacts would constitute adverse, but not significant visual impacts.

Underground Segment. The underground portion of the Proposed Project would be located beneath existing paved streets or transportation right of ways. No significant visual impacts are identified in this segment, and no mitigation measures are recommended.

3.2.2 Alternatives

Southern Segment Alternatives

Route Option 1B. Route Option 1B would be entirely underground within paved roads, except for one option for crossing Crystal Springs Dam. If an overhead crossing of Crystal Springs Dam is required, the two transition structures (one north and one south of the dam) would result in significant visual impacts because of their introduction of complex industrial features into the natural landscape around the dam. Vegetative screening is proposed as a measure to mitigate this impact but it would not be reduced to a level that would be less than significant.

Partial Underground Alternative. The Partial Underground Alternative would modify the proposed route to avoid visual and other impacts in four sensitive areas: in Edgewood Park and Pulgas Ridge Preserve, and adjacent to three residential areas (San Mateo Highlands, Town of Hillsborough, and Burlingame). This alternative would eliminate significant visual impacts in each of those four locations along the proposed route. However, it would also create new significant impacts in four areas (along Cañada Road near Edgewood Road, at the crossing of I-280 at the Carolands Substation, and at two of the four transition structure locations adjacent to the Town of Hillsborough). However, the significant visual impacts of the alternative would be more than offset by the beneficial removal of towers from Edgewood Park, the Pulgas Ridge Preserve, and the Burlingame residential area, as well as the undergrounding of the line adjacent to Hillsborough and San Mateo Highlands residences.

Northern Segment Alternatives

West of Skyline Transition Station Alternative. The West of Skyline Transition Station would introduce a complex industrial feature adjacent to Skyline Boulevard and the San Andreas Trail, where there are no other industrial features except for the existing 60 kV transmission line. The resulting visual impact would be potentially significant, but mitigable to less than significant levels by installing vegetative screening for the lower portion of the facility, and by considering installation of a transition pole rather than a station.

Sneath Lane Transition Station Alternative. The addition of the transition facilities next to the Sneath Lane Substation would add industrial features to an already industrial setting containing similar features, with limited public visual access. Effective implementation of screening and landscaping would further reduce the potential visual impact by ensuring that a majority of the complex industrial forms are screened from public view; the impact would be less than significant.

Underground Transmission Line Routes. There are six underground transmission line routes that are evaluated in the EIR (Sneath Lane, Westborough Boulevard, Cherry Avenue, Modified Existing 230 kV, Route Option 4B – East Market Street, and Junipero Serra). The underground routes would not be visible during project operation and no long-term visual impacts would occur. The only visual impact would be during construction when equipment and materials would be visible, especially at staging areas. However, all impacts would be short-term and less than significant.

No Project Alternative

To the extent that visual impacts would result from the upgrades to the PG&E transmission system, impacts would be adverse but less than significant. Installation of the four CCSF turbines may result in significant adverse visual impacts. However, given that the proposed locations for the turbines are more industrial and urban in character compared to the Proposed Project, it is anticipated that the resulting visual impacts would be less than those of the Proposed Project and easier to mitigate.

3.3 Biological Resources

3.3.1 Proposed Project

Overhead Segment. The overhead segment of the Proposed Project is located in a corridor with high biological sensitivity with the SFPUC Peninsula Watershed and serpentine grasslands. Activities related to the construction, operation, and maintenance of the Proposed Project may cause direct and indirect impacts to sensitive vegetation types and special status plant species. Impacts to Biological Resources would range from temporary to permanent in duration. The following impacts would result from the overhead segment of the Proposed Project:

- **Temporary and/or Permanent Loss of Sensitive Vegetation Communities.** The Proposed Project could result in permanent loss and/or temporary disturbance to sensitive plant communities and special status species. Specific issues considered under this impact topic include impacts of invasive species, wetlands and riparian vegetation effects, and effects to serpentine grasslands and special status species. Surface disturbance to non-sensitive and wide ranging plant communities (e.g., annual grassland plant communities) are generally considered less than significant, whereas surface disturbance to highly sensitive plant communities (e.g., serpentine grassland in the vicinity of Edgewood Park and Preserve) would be considered a significant impact even with implementation of mitigation.
- **Loss of or Damage to Trees.** A limited number of trees would be permanently removed or trimmed to install the new tower footings.
- **Erosion and Sedimentation.** Erosion and sedimentation can temporarily or permanently damage vegetation communities by removing or substantially disrupting surface soil layers. Drainages, wetlands, and riparian areas could be substantially degraded by the accumulation of sediments and alteration of natural hydrologic characteristics.
- **Wildlife Habitat Removal.** Wildlife habitat removal includes activities such as: (1) ground surface grading and blading, (2) tree or shrub removal, (3) tree trimming, or (4) scraping of road surfaces that disturbs surface and subsurface soils. Each of these activities could effectively remove existing habitat, thereby reducing its availability to local wildlife populations.
- **Wildlife Disturbance from Human Presence.** Indirect impacts on wildlife could occur as a result of noise and increased human presence throughout the project area, with heaviest concentrations

occurring during access to and construction at tower locations, during stringing of the line, and at construction staging and pulling areas.

- **Direct Wildlife Mortality.** Direct loss of small mammals, reptiles, and other less mobile species could result primarily from the use of construction vehicles during stringing of the line, and use of other construction or maintenance vehicles within the 100-foot ROW. Clearing, grading, excavating and/or burying habitats could also lead to mortality of small mammals, reptiles, and nesting birds with eggs or young.
- **Bird Electrocution and Tower/Line Collisions.** Bird electrocutions could occur at the Jefferson and Ralston Substations or with any low voltage power lines (less than 69 kV) associated with these substations, where conductors are closer together than 80 inches (the wingspan of the largest North American raptor or waterfowl). Bird collisions with power lines generally occur when: (1) a power line or other aerial structure transects a daily flight path used by a concentration of birds, and (2) migrants are traveling at reduced altitudes and encounter tall structures in their path. The potential for bird collisions with the Proposed Project's power lines or substation facilities occurs in all areas of the overhead transmission line, and is greatest in those locations that are near the open water and wetlands associated with Upper and Lower Crystal Springs Reservoirs and San Andreas Lake.
- **Habitat Removal or Disturbance of Special Status Wildlife Species.** Of 37 special status wildlife species identified as potentially occurring within the Proposed Project area, only 29 are considered to potentially be adversely impacted by the Proposed Project, due to the location of documented sightings, individual habitat requirements, and the species' nature and susceptibility to disturbance.

With the exception of surface disturbance to highly sensitive plant communities (e.g., serpentine grassland in the vicinity of Edgewood Park and Preserve.), which is a significant impact even with mitigation, all other potentially significant impacts would be reduced to less than significant with implementation of mitigation. Mitigation measures are recommended to reduce impacts to wildlife, including requirements for pre-construction wildlife surveys, use of exclusion flagging or fencing to mark and protect sensitive wildlife habitat and other vegetation, implementing a Worker Environmental Awareness Program for construction crews, surveys for nesting raptors, and bird electrocution and collision protection requirements.

Mitigation measures present specific protective requirements for the following special status wildlife species: Edgewood Blind and Edgewood Park Microblind Harvestman, Bay Checkerspot Butterfly, Mission Blue Butterfly, San Bruno Elfin Butterfly, Callippe Silverspot Butterfly, Ricksecker's Water Scavenger Beetle, California Tiger Salamander, California Red-Legged Frog, San Francisco Garter Snake, Western Pond Turtle, nesting songbirds, raptor species and special status bats (Pallid Bat, Long-Eared Myotis, Long-Legged Myotis, San Francisco Dusky-Footed Woodrat).

Underground Segment. The underground transmission line portion of the Proposed Project route is generally located within a heavily urbanized and developed area. With the exception of the disturbed non-native grassland along the BART ROW construction areas, no wildlife habitats would be directly affected by the underground portion of the alignment. Indirect impacts, including fugitive dust emissions, could occur to potentially suitable habitat for special status butterflies in the San Bruno Mountain area. This potential impact, however, will be mitigated to less than significant levels with implementation of dust and erosion control measures.

3.3.2 Alternatives

Southern Segment Alternatives

Route Option 1B - Underground. Most construction of this alternative would occur within paved roadways, no overhead towers would be constructed or removed, and no new conductors and fiber optic wires would present collision potential for birds. Therefore, this alternative would greatly reduce the effects of the Proposed Project on biological resources. There are several options presented to avoid sensitive California red-legged frog (CRLF) habitat and associated vegetation on the Crystal Springs Dam. Among five options for crossing the dam, PG&E has suggested use of an approximately 3,000-foot underwater cable to bypass the dam and its population of CRLF. The cable would diverge from Cañada Road south and north of the dam and would be installed down the bank and into the lake. CPUC staff developed a sixth option of an overhead transmission line segment across San Mateo Creek. This overhead option would limit construction to existing roadways and would not impact any vegetation communities, except at two transition stations connecting conductors at the San Mateo Creek Gorge. While this alternative would likely result in permanent and temporary impacts to vegetation, surveys did not identify rare plants or sensitive plant communities and wildlife at these locations. Effective application of the mitigation developed for vegetation and wildlife impacts resulting from the Proposed Project would reduce potential impacts of this alternative to less than significant levels.

Partial Underground Alternative. The overhead transmission line portions of this alternative would result in similar types of impacts and require the same mitigation as those described for the Proposed Project. Impacts would still occur in Edgewood Park, but from tower removal only (no new towers would be installed), so the significant impact of the Proposed Project would not occur with this alternative. The underground segments of the Partial Underground Alternative would result in trenching activities in areas that are known to support serpentine grassland habitat, adjacent to the residential areas of San Mateo Highlands and the Town of Hillsborough. The underground transmission line would be installed within existing dirt roads that parallel the existing 60 kV power line corridor, but temporary construction disturbance would extend into undisturbed areas east and west of the existing road. Temporary impacts to serpentine grasslands would result from removal of existing vegetation, and could result from vegetation trampling associated with foot and vehicular traffic. These temporary impacts to the serpentine grasslands would affect areas of special status species that are known to occur in this vicinity, including plants such as fragrant fritillary, fountain thistle, and Marin western flax, and wildlife such as the Bay checkerspot butterfly. Mitigation specific to this alternative would restrict the ROW in these sensitive areas to a 40-foot wide corridor in order to reduce potential impacts to less than significant.

Trenching could result in permanent impacts to serpentine grasslands both within and adjacent to the areas being trenched by altering the existing soil conditions (i.e., soil composition and compaction) and the existing hydrology (i.e., existing surface and groundwater flow, erosion, sedimentation). Measures specific to reestablishing the pre-existing soil and vegetation conditions following trenching (e.g., proper compaction, topsoil replacement, revegetation with native seed mix, vegetation success monitoring) would be necessary to reduce these potential impacts to less than significant.

The Partial Underground Alternative also includes a route segment that would follow a new corridor west of I-280 in order to eliminate the existing and proposed towers from the area adjacent to residences in Burlingame. This alternative route segment would avoid serpentine grasslands, as well as move the route away from residences. However, the access to this alternative route segment is poor; and existing older dirt roads would need to be widened and improved, new tower sites developed, and conductor pull sites cleared. As a result, despite avoiding the serpentine area that would be affected by removal and construction of the four towers west of Burlingame, this alternative segment would create substantially greater disturbance.

Northern Segment Alternatives

West of Skyline Transition Station Alternative. The footprint of the West of Skyline Transition Station would permanently remove approximately 4,000 square feet of vegetation and wildlife habitat within the SFPUC watershed lands. The construction and operation of the West of Skyline Transition Station would generally result in similar impacts as those described for the Proposed Project, because construction would occur in the same ROW. The permanent removal of vegetation and wildlife habitat associated with construction would be considered a potentially significant impact if sensitive habitat or special status species are affected. As with the proposed transition station, electrical structures and ground wires at the alternative transition station could increase bird electrocution and collision-related mortalities. Effective application of mitigation measures would reduce these potential impacts to less than significant levels.

Sneath Lane Transition Station Alternative. The Sneath Lane Transition Station would be placed on graded non-vegetated land adjacent to an existing substation (Sneath Lane Substation). The overhead and underground transmission line options associated with this alternative would be placed along existing and highly disturbed and non-vegetated roadways and in an area with existing power line infrastructure. Due to the lack of vegetation and wildlife habitat and the high level of disturbances associated with this alternative, no impacts to biological resources are expected other than potential bird electrocution and collision impacts associated with the all transition station structures and conductors, including the proposed transition station. Effective implementation of mitigation for bird electrocution and collisions would reduce this potentially significant impact to less than significant.

Underground Transmission Line Routes. All of the northern segment alternatives would be placed underground in an urban/commercial setting within paved roadways, parking lots, the BART ROW, and/or adjacent to the UPRR ROW. The Modified Existing 230 kV Underground Alternative would cross a tributary of Colma Creek, and thus has potential to affect wetlands. Coordination with CDFG on the Stream Alteration Permit would be critical, and a directional drill or bored crossing would be required. In order to ensure that impacts are less than significant, PG&E would prepare and submit for CPUC and CDFG approval an HDD “frac-out” prevention and response plan. Beyond this tributary crossing, no impacts to biological resources are expected with the northern segment alternatives and no mitigation is proposed.

No Project Alternative

The components of the No Project Alternative would occur almost entirely within urban areas. Generation facilities would be placed at urban industrial sites where biological impacts would be minimal. The No Project Alternative includes the assumption that the San Mateo-Martin #4 reconductoring project would be completed, requiring construction across San Bruno Mountain in areas protected by the HCP. However, it is assumed that all biological impacts will be mitigated to less than significant levels through aggressive implementation of protective measures.

3.4 Cultural Resources

3.4.1 Proposed Project

Fifteen cultural resources were identified in the vicinity of the Proposed Project area (defined as being within 200 feet of a project component). No evidence of surface or subsurface archaeological sites in the Proposed Project’s area of potential effect (APE), proposed for aboveground and underground construction (substations, towers, etc.) were identified as part of PG&E’s PEA.

Overhead Segment. The majority of identified historic or prehistoric resources in the vicinity of the project area are not located within the immediate boundaries of the Proposed Project overhead segment

and no adverse impacts to known cultural resources are expected during the operation phase of the Proposed Project. Adverse impacts from construction activity would most likely result from encountering unanticipated cultural deposits. The following types of impacts to cultural resources were identified for the Proposed Project overhead segment:

- Inadvertent impacts may occur to known archaeological resources within and in the vicinity of the project area during construction and during activities associated with transportation, storage, and maintenance. One prehistoric archaeological site is believed to be located outside of the Project APE in the Carolands Substation to Transition Station though the site boundaries are unclear from site documentation. The area from MP 12.9–14.1 is designated as an Archaeological High-Probability Area due to the potential for encountering identified cultural resources or previously undetected cultural resources in this area. Implementation of Mitigation will ensure that impacts are less than significant.
- Impacts could also result from inadvertent or malicious vandalism or unauthorized collection of cultural resources on the surface of sites.
- Unknown and potentially significant cultural resources could exist within overhead and underground segments of the Proposed Project. Destruction of potentially significant cultural resources without mitigation would be a significant impact.

Mitigation measures are designed to address potential adverse effects on both known cultural resources, and unanticipated cultural resources during the construction phase of the Proposed Project. Mitigation measures include avoidance of cultural resources, training of construction personnel, construction monitoring, and the implementation of a Cultural Resource Treatment Plan. No mitigation is necessary for the operation phase of the Proposed Project.

No cultural resources were identified in the vicinity of the proposed transition station.

Underground Segment. Types of impacts to cultural resources would be same as described above for the overhead segment. However, a greater number of known cultural resources are within or near the project area of the underground segment, along San Bruno Avenue and the BART ROW. The eastern portion of San Bruno Avenue is considered an Archaeological High-Probability Area due to the potential for encountering cultural resources associated with an identified prehistoric site and/or previously undetected cultural resources in this area. One prehistoric archaeological site is located outside of the project APE in the vicinity of the project area, though the site boundaries are unclear from site documentation.

Three watercourse crossings (Colma Creek, Twelve Mile Creek, and an unnamed drainage near Spruce Avenue), and designated portions of the BART ROW are considered to be Archaeological High-Probability Areas. With respect to the BART ROW APE, a historic stone railroad bridge, one prehistoric site, and four historic properties are located in this part of the study area. One prehistoric site is located just outside of the APE. Similar to the overhead segment, impacts to cultural resources along the underground segment would be less than significant with mitigation.

3.4.2 Alternatives

Archival research and field surveys resulted in the identification of 21 surface or subsurface archaeological sites or historic properties within 0.25 miles of alternative project routes, including two previously unrecorded prehistoric sites discovered during field survey. Eight cultural resources were identified within 200 feet of alternative routes.

Southern Segment Alternatives

Route Option 1B. The number of potential impacts to cultural resources is higher with PG&E Route Option 1B in comparison with the Proposed Project. PG&E Route Option 1B would avoid one prehistoric site and one water crossing; however, this alternative would pass in closer proximity to eight prehistoric sites that would be otherwise avoided by the Proposed Project. The probability of encountering archaeological deposits associated with known and unanticipated prehistoric resources is considered to be very high in the vicinity of the intersection of Trousdale and El Camino Real along both streets.

Crystal Springs Dam is an historic resource listed in the California Inventory of Historic Resources. The SFPUC has determined that installation of the cables on or around the dam (using one of several possible options presented by PG&E) would be feasible. Any method that involves the direct attachment of a cable to the dam, or would involve potential alterations to the setting of the dam has the potential to cause damage to or diminish the significance of an important historic resource. This could result in its integrity being diminished, and affect its potential eligibility to the CRHR, a potentially significant impact, mitigable to less than significant levels. An additional Mitigation Measure is incorporated in the EIR to ensure that the all impacts of this alternative are less than significant.

Partial Underground Alternative. Potential impacts from construction of the Partial Underground Alternative would be similar to those for the Proposed Project in the areas where the two routes overlap. The Partial Underground Alternative would also involve the crossing of four watercourses, all designated as Archaeological High-Probability Areas. This alternative would involve increased soil disturbance compared to the proposed route due to trenching associated with placing the transmission underground north of Highway 92, and through the relocation of the existing overhead lines near Edgewood Park and between San Andreas Lake and Lower Crystal Springs Reservoir. There is a resulting greater risk of encountering and adversely affecting previously unknown cultural resources with the Partial Underground Alternative compared to the Proposed Project. Implementation of Mitigation Measures would ensure that any impacts are less than significant.

Northern Segment Alternatives

West of Skyline Transition Station Alternative. No cultural resources have been identified in the area of the West of Skyline Transition Station. Construction activities associated with transition station modification may expose previously undetected cultural resources. Implementation of mitigation measures generally described in the overhead segment discussion above will ensure that impacts are less than significant.

Sneath Lane Transition Station Alternative. There are no previously identified cultural resources in either location. Construction activities associated with building the Sneath Lane Transition Station could expose previously undetected cultural resources. Implementation of mitigation will ensure that any impacts are less than significant.

Underground Transmission Line Routes. The Cherry Avenue Alternative is in an area considered to be an Archaeological High-Probability Area due to the proximity of recorded sites in the area, and the potential for finding previously unknown cultural resources near San Bruno Creek and the former Bay shore. Use of Sneath Lane would also have increased potential effects on cultural resources, because it would pass in closer proximity to Golden Gate National Cemetery, prehistoric sites along San Bruno Creek, and one historic site near the intersection of Sneath Lane and Cherry Avenue. All other northern segment alternatives would have similar or fewer impacts on identified cultural resources. As mentioned above, construction activities could expose previously undetected cultural resources, however, mitigation measures would reduce potential impacts to less than significant levels.

No Project Alternative

Under the No Project Alternative, no adverse impacts to cultural resources would be expected from interruptible load programs, demand-side management, or curtailment of electric service. Adverse impacts to cultural resources could occur during earth disturbance associated with construction or modification of PG&E system upgrades and installation of new generation. Negative impacts to known or unanticipated cultural resources from these construction activities without mitigation could be significant. However, most projects require CEQA compliance, so protection of cultural resources would be required prior to construction.

3.5 Geology, Soils, and Paleontology

3.5.1 Proposed Project

Overhead Segment. This segment of the proposed route lies parallel to the San Andreas Fault and within one mile of the fault trace. The northern end of the segment crosses over the surface trace of the 1906 rupture in two places. U.S. Geological Survey (USGS) and other scientists conclude that there is a 62 percent probability of at least one magnitude 6.7 or greater quake, capable of causing widespread damage, striking the San Francisco Bay region before 2032. In the event of an earthquake along the San Andreas Fault adjacent to the project, this entire segment would be subject to severe groundshaking and near-field effects such as amplified ground motions in particular areas. In addition, the transmission towers in the vicinity of the fault crossings would be subject to the hazard of surface fault rupture, potentially causing damage or failure of tower structures. Impacts associated with overhead active fault crossings can be mitigated to less than significant levels because overhead lines are able to distribute fault displacements over a comparatively long span. Recommended mitigation requires fault crossings to be as close to perpendicular as possible and to place towers as far as feasible outside the area of the mapped fault traces.

The proposed transition station site is located immediately adjacent to two active traces of the San Andreas Fault. Because of the possible large offsets of up to 20 feet (the west side of the fault would move north relative to the east side) that could occur along these active traces, structures and equipment associated with the proposed transition station would unavoidably be susceptible to impacts from surface fault rupture. Fault rupture impacts to the proposed transition station would be significant and not mitigable to a level that is less than significant.

In addition to impacts associated with fault rupture, a range of other potentially significant impacts could occur during construction. These impacts include soft or loose soils along the alignment that could affect tower foundations or excavation stability, slope instability caused by grading or fill, discovery of paleontological resources, and exposure of naturally occurring asbestos fibers. Other geologic hazards that could affect the project include strong groundshaking, seismically induced ground failure or liquefaction, and slope instability. Mitigation for these impacts would be accomplished through conducting geotechnical surveys, studies, and investigations that would define the best design to protect against geotechnical hazards, consulting a paleontologist, and implementing standard engineering methods for problematic and corrosive soils.

Underground Segment. The types of impacts and mitigation measures discussed for the overhead segment would also apply to the underground segment of the Proposed Project. However, one significant difference in impacts between the overhead and underground line portions of the project is that a portion of the underground line would cross traces of the active San Andreas Fault, a significant and unavoidable impact in the vicinity of the proposed transition station. The underground line would also cross the trace of the potentially active Serra Fault; however, this fault is much less likely to rupture than the San

Andreas Fault and impacts are considered to be less than significant with mitigation that requires the fault crossing to be as close to perpendicular as possible to minimize the distance of the fault crossing.

3.5.2 Alternatives

Southern Segment Alternatives

Route Option 1B. Route Option 1B would require construction of an almost entirely underground transmission line, resulting in a greater likelihood of construction impacts related to geology, soils and paleontological resources similar to those described above for the overhead line. However, there would be no significant and unavoidable impacts associated with alternative, because it would avoid the San Andreas Fault crossing near the proposed transition station. Although this underground route alternative would be subject to surface fault rupture at crossings of potentially active traces of the San Andreas Fault, because this fault trace is considered potentially active rather than active, impacts are assessed as mitigable to less than significant levels.

Partial Underground Alternative. This alternative would primarily follow the proposed route and impacts to geology, soils and paleontological resources would be similar to those defined for the Proposed Project. In addition, this alignment would be subject to surface fault rupture at crossings of potentially active fault traces (Cañada trace of the San Andreas Fault). Because the Cañada trace of the San Andreas Fault is considered potentially active rather than active, mitigation would reduce this impact to less than significant levels.

Northern Segment Alternatives

The Northern Segment Alternatives would all involve potentially significant, but mitigable impacts similar to those described above for the proposed overhead route segment. The discussions below focus on the most important geologic issue: the crossings of active faults.

Alternative Transition Stations. Similar to the proposed transition site, the sites for the West of Skyline and Sneath Lane alternative transition stations would be located on or immediately adjacent to the active traces of the San Andreas Fault and within the Alquist-Priolo fault hazard zone. Connections from both alternative transition stations to all three potential underground route options (Sneath Lane, Westborough Boulevard, and the proposed route) would have to cross active traces of the San Andreas Fault. The underground transmission lines leaving these transition station sites would be subject to fault rupture, a significant and unmitigable impact.

Junipero Serra Alternative. The buried transmission line along this alternative alignment would also be subject to significant and unavoidable fault rupture impacts associated with the underground line within Skyline Boulevard, which parallels the active traces of the San Andreas Fault. The route would cross the fault zone in Westborough Boulevard just east of Skyline Boulevard.

Other Underground Alternative Routes. There would be no significant and unmitigable impacts associated with the other underground alternative routes (Cherry Avenue, East Market Street, or the Modified 230 kV Underground ROW). The Cherry Avenue Alternative and East Market Street Alternative would not cross any fault traces and although the Modified 230 kV Underground ROW Alternative would cross one fault (Hillside Fault), the fault is not considered active or potentially active and crossing it would result in less than significant impacts.

No Project Alternative

The No Project Alternative scenario would result in the installation of new generation in the CCSF, and in improvements to existing utility systems. The utility system improvements would create only minor impacts to the geology and soil in the areas where upgrades of existing systems take place. New generation facilities would require analysis of geologic and seismic impacts, consideration of appropriate soils and foundations, and specific facility design to minimize damage in earthquakes or strong groundshaking.

3.6 Hydrology and Water Quality

3.6.1 Proposed Project

Overhead Segment. Most impacts to hydrology and water quality associated with the overhead segment of the proposed project would be assessed to be potentially significant, but mitigable to less than significant levels and would occur during the construction phase. These impacts would include: impacts from soil erosion and sedimentation from construction activity and access roads; potential degradation of surface or groundwater quality through (a) spill of potentially harmful materials used in construction, (b) accidental releases of oil from substations or the transition station or (c) water quality degradation through project-related excavation of contaminated soil or groundwater; and encroachments into a floodplain or watercourse by substations, transfer station, or power poles. An operational potentially significant impact identified is the potential release of oil at substations, switchyards, and tap locations.

Mitigation measures are proposed to reduce all potential impacts to less than significant, including ensuring compliance with the Peninsula Watershed Plan through review and approvals of project features by the San Francisco Public Utilities Commission; placing aboveground project features outside the flow path of watercourses; and (3) burying the underground portion of the line below the estimated 100-year depth of scour for streams.

Impacts associated with the aboveground segment that are found to be less than significant and that do not require mitigation measures are increased runoff from new impervious areas, and construction in a potential dam inundation area.

Underground Segment. Impacts associated with underground construction work would include most of the impacts described above for the aboveground segment, plus exposure of the underground cable to damage through stream scour and erosion and interruption of groundwater flow or modification of groundwater depths during construction of the underground cable. These impacts are potentially significant, but mitigable to less than significant levels with implementation of mitigation measures that require the transmission line burial depth to be extended below the estimated 100-year depth of scour for the subject streams and the characterization of groundwater hydrology and the development of specific means to minimize the impact on groundwater hydrology.

3.6.2 Alternatives

Southern Segment Alternatives

Route Option 1B. Impacts for Route Option 1B would generally be similar to those for the Proposed Project because they would occur in the same watersheds and would affect the same water crossings. However, the risk of water contamination is substantially greater with Route Option 1B due to the much longer length of excavation, particularly within the Peninsula Watershed Lands. Implementation of recommended mitigation would ensure that impacts to surface and groundwater would be less than significant.

Partial Underground Alternative. Because this alternative would follow a similar route to the Proposed Project, impacts of this alternative are expected to be the same as those of the Proposed Project. However, because this alternative includes several miles of underground transmission line construction within unpaved areas (adjacent to the San Mateo Highlands and the Town of Hillsborough), there is a greater potential for erosion and sedimentation to affect water quality within the Peninsula Watershed. Implementation of recommended mitigation would be critical especially for the underground segments, and would ensure that all impacts would be less than significant.

Northern Segment Alternatives

West of Skyline Transition Station Alternative. The West of Skyline station would be located on currently undisturbed land adjacent to the San Andreas Trail, so would require grading and more extensive construction disturbance. Implementation of mitigation for erosion and sedimentation control would be important to ensure that impacts to water quality in the Peninsula Watershed would not be significant.

Sneath Lane Transition Station Alternative. The Sneath Lane transition station would be located adjacent to the existing Sneath Lane Substation on an already graded and graveled area. Construction disturbance would be similar to that at the proposed transition station site, and mitigation would reduce impacts to less than significant levels.

Underground Transmission Line Routes. All underground transmission line routes in the northern area would have similar impacts since they would be constructed in paved roadways. There is some variation among alternatives in the number of surface waterways crossed, but no significant differences in impact would result. The impacts of these underground alternatives would generally be similar to those of the Proposed Project in its underground segment, and the same mitigation measures would apply to ensure that impacts are less than significant.

No Project Alternative

The construction of most PG&E system improvements would likely have minimal water resources impacts because very little ground disturbance would likely be required. The Potrero-Hunters Point 115 kV underground cable could create greater erosion and sedimentation impacts, but if installed in conjunction with a light rail project, impacts related to the power line alone would be minimal. The installation of new turbine generators in the CCSF would likely occur in industrial areas, but general construction activities associated with installation of the new turbines could contaminate surface and groundwater if appropriate protective measures were not taken.

3.7 Public Health and Safety

Two separate issues are addressed under public health and safety: hazardous materials and contamination, and electric and magnetic field (EMF) related issues.

3.7.1 Hazardous Materials and Environmental Contamination

Proposed Project

Overhead Segment. Because the southern segment of the proposed route would pass through mostly undeveloped areas, there are only four documented contaminated sites and all are leaking underground storage tanks from gas stations. The few sites that are known are in the vicinity of the transition station. Given the location of the proposed transmission towers (on SFPUC Peninsula Watershed lands), it is unlikely that contamination would be encountered during construction. However, three mitigation measures are recommended, to supplement measures that PG&E has proposed, that define investigation and treatment requirements for

contaminants discovered during construction. With mitigation, contamination encountered during construction would be properly removed and transported; all impacts would be less than significant.

Underground Segment. This segment of the proposed route passes through commercial and light industrial areas. There are nearly 40 contaminated sites within a quarter mile of the route that are listed with various local, State, and federal contamination oversight agencies. Similar to the overhead segment, contaminated soil or groundwater encountered during construction would be removed and transported to approved disposal areas, and no significant impacts would occur.

Alternatives

Southern Segment Alternatives

Route Option 1B. This all-underground alternative route would pass within a quarter mile of 22 recorded contaminated sites (all in the El Camino Real segment). The density of sites makes effective implementation of mitigation especially important on this route, but with mitigation, no significant impacts would result.

Partial Underground Alternative. This alternative would follow a similar route as the Proposed Project's overhead segment. The areas where this alternative diverges from the proposed route are in undeveloped areas where no recorded sites exist. Few impacts are expected, and if unanticipated sites are discovered mitigation will ensure that impacts are less than significant.

Northern Segment Alternatives

Because all of the Northern Area alternatives would be entirely underground, they would have the same types of impacts identified for the Proposed Project, with variations in degree of construction impacts. No new impacts were identified for any of these alternatives. No contaminated sites were identified near the two alternative transition stations. A few sites exist along Sneath Lane near El Camino Real. The Modified Existing 230 kV Underground route has the greatest likelihood of encountering contaminants, because this route through industrial areas would pass within a quarter mile of 32 recorded sites. However, as for the Proposed Project's underground segment, implementation of standard mitigation recommended in the EIR would ensure that no health or safety impacts from construction through or disposal of contaminants would occur.

No Project Alternative

The No Project Alternative scenario that is related to energy management would not have any effect of environmental contamination. Installation of new generation facilities (four gas turbines proposed by the CCSF) could potentially result in excavation of contaminated soil and/or groundwater, resulting exposure of workers and the public to hazardous materials. Locations for the new turbines could have existing soil or groundwater contamination, which would be encountered during construction excavation. In addition, the planned removal of the Hunters Point Power Plant would require follow-up evaluation of the site for contamination. The amounts and types of contaminated soil and groundwater are difficult to anticipate without further evaluation of proposed new turbine locations, therefore comparison of the impacts of environmental contamination for the new generation facilities and the Proposed Project is difficult.

3.7.2 EMF Issues

Recognizing that there is a great deal of public interest and concern regarding potential health effects from exposure to electric and magnetic fields (EMFs) from power lines, the EIR provides information regarding EMF associated with electric utility facilities and the potential effects of the Proposed Project related to public health and safety. Potential health effects from exposure to *electric fields* from power lines (effect produced by the existence of an electric charge, such as an electron, ion, or proton, in the

volume of space or medium that surrounds it) are typically not of concern since electric fields are effectively shielded by materials such as trees, walls, etc., therefore, the majority of the following information related to EMF focuses primarily on exposure to *magnetic fields* (invisible fields created by moving charges) from power lines. However, the EIR does not consider magnetic fields in the context of CEQA and determination of environmental impact. This is because (a) there is no agreement among scientists that EMF does create a potential health risk, and (b) there are no defined or adopted CEQA standards for defining health risk from EMF. As a result, EMF information is presented for the benefit of the public and decisionmakers.

After several decades of study regarding potential public health risks from exposure to power line EMF, research results remains inconclusive. Several national and international panels have conducted reviews of data from multiple studies and state that there is not sufficient evidence to conclude that EMF causes cancer. Most recently the International Agency for Research on Cancer (IARC) and the California Department of Health Services (DHS) both classified EMF as a *possible* carcinogen. The information included in EIR quantifies existing EMF exposures within the community - these exposures are widespread and cover a very broad range of field intensities and duration. In the Jefferson-Martin Project area, the magnetic field levels for the existing 60 kV line range from 3 to 8 milliGauss (mG) at a distance of 50 feet from the line. Field levels are estimated to range from 8 to 27 mG for the rebuilt 230 kV/60 kV line (the Proposed Project) at a distance of 50 feet from the line.

Presently there are no applicable regulations related to EMF levels from power lines. However, the California Public Utilities Commission has implemented a decision (D.93-11-013) requiring utilities to incorporate “low-cost” or “no-cost” measures for managing EMF from power lines up to approximately 4% of total project cost. Using the 4% benchmark, PG&E has incorporated low-cost and no-cost measures to reduce magnetic field levels near schools along the proposed route (including deeper burial of underground lines and changing phase configuration). There are additional potential measures for reducing magnetic fields, mostly beyond the no-cost/low-cost parameters (including increasing distance from conductors, reducing conductor spacing, and minimizing current), which are described for the benefit of the public and decision makers in reviewing the Proposed Project.

3.8 Recreation

3.8.1 Proposed Project

Overhead Segment. The overhead segment of the Proposed Project would result in potentially significant impacts on recreation resources because the project would conflict with applicable recreation plans, policies, or regulations of the Peninsula Watershed Master Plan, the San Mateo County General Plan, and the Edgewater Park and Natural Preserve Master Plan. Construction activities would reduce the aesthetic value of the recreational facilities and resources as a result of the dust, noise, and traffic congestion produced by these activities and could impair views from parks, trails, and vista points. Construction activities could also result in temporary trail closures and disrupt or restrict access to different park areas or trails. New permanent towers could impair views in some locations, permanently degrading the recreational value of some areas.

Mitigation measures that would reduce the impact of construction on recreational resources include those developed for Land Use, Visual Resources, and Transportation and Traffic. The recreation mitigation for construction impacts requires PG&E to schedule activities to avoid construction around recreation areas during weekends and holidays and post notification of trail or access closures in advance. The increased height and new placement of the transmission lines and towers in Edgewater Park could lead to impacts that would significantly degrade the recreational experience of using the park, resulting

in an impact that would be significant and unmitigable. All other recreation impacts would be reduced to a less than significant level with the identified mitigation measures.

Underground Segment. Construction of the underground segment of the Proposed Project could conflict with policies of the San Bruno Mountain State and County Park Master Plan. Mitigation for this impact involves developing a construction plan for work in the park. With mitigation, this impact would be reduced to a less than significant level.

3.8.2 Alternatives

Southern Segment Alternatives

Route Option 1B. Route Option 1B would result in more intense disruption of recreation uses during construction as compared to the Proposed Project, and the option of the overhead crossing of Crystal Springs Dam would create a significant impact by degrading the recreational experience at Crystal Springs Dam and along the Cañada Road Bikeway. Although Route Option 1B would avoid impacts to Edgewood County Park and Preserve, the recreation impact at Crystal Springs Dam would not be mitigable if the overhead crossing of the dam were used. Impacts related to the dam crossing would be avoided by use of an underwater cable around the dam or attaching the cable to the face of the dam. With measures identified for the Proposed Project, all other recreation impacts could be reduced to a level that would be less than significant.

Partial Underground Alternative. The Partial Underground Alternative would similarly avoid impacts to Edgewood County Park and Preserve and the Pulgas Ridge Open Space Preserve, but would also impact bike lanes and hiking trails along its alignment, similar to the Proposed Project, but not to the level of severity as described for Route Option 1B. All recreation impacts resulting from this alternative could be mitigated to less than significant levels.

Northern Segment Alternatives

Depending on the route alignment selected, various community parks could be affected or avoided as the route travels through northern San Mateo County. The various alternatives could impact the different recreational uses below.

West of Skyline Transition Station Alternative (with all route alignments). The West of Skyline Transition Station would have a greater impact on existing recreation resources due to its location adjacent to the San Andreas Trail. After construction, the West of Skyline Transition Station would also permanently and adversely affect existing recreational facilities because it would place a permanent industrial structure immediately adjacent to the San Andreas Trail.

The Sneath Lane Underground Alternative route would avoid impacts to the San Andreas Trail and avoid recreation uses along the BART ROW, such as Bayshore Circle Park and the Herman Tot Lot. The Westborough Underground Alternative would avoid impacts along the BART ROW to Bayshore Circle Park, the Herman Tot Lot, and Orange Memorial Park, in addition to the San Andreas Trail. Construction activities would, however, additionally affect Westborough Park and the California Golf Club of San Francisco. With measures identified for the proposed project, all recreation impacts, including the impact of the transition station adjacent to the San Andreas Trail, could be reduced to a level that would be less than significant.

Sneath Lane Transition Station Alternative (with all route alignments). The Sneath Lane Transition Station would not cause any recreation impact. Construction activities along Skyline Boulevard for the Proposed Project route alignment could affect the San Andreas Trail, but only for a short period. All

other route alignments would affect the community parks above. With measures identified for the proposed project, all recreation impacts could be reduced to a level that would be less than significant.

Cherry Avenue Alternative. Impacts and mitigation measures identified for the Proposed Project would remain applicable to this alternative, except Commodore Park in San Bruno would also be affected by disturbance during construction. With mitigation, all recreation impacts would be less than significant.

Modified Existing 230 kV Alternative. The Modified Existing 230 kV alternative would also result in construction-related impacts, though by avoiding community parks and San Bruno Mountain, it would result in a substantially reduced degree of disturbance. The Modified Existing 230 kV alternative route avoids potentially significant impacts to San Bruno Mountain State and County Park during construction, but would result in impacts to bikeways in other locations, such as along Bayshore Boulevard. With mitigation, all recreation impacts would be less than significant.

Route Option 4B: East Market Street Alternative. Impacts and mitigation measures identified for the Proposed Project would remain applicable to this alternative. With mitigation, all recreation impacts would be less than significant.

Junipero Serra Alternative. By avoiding the Hillside Boulevard Bikeway that would otherwise be affected by disturbance during construction, this alternative would minimize recreation impacts. With mitigation, all recreation impacts would be less than significant.

No Project Alternative

Under the No Project Alternatives, few recreational resources would be affected. The San Mateo–Martin #4 reconductoring project would cross San Bruno Mountain, but activities would be restricted to the existing transmission corridor and compliance with the HCP would be required. The construction and operation of new generation facilities in CCSF would likely be in industrial areas and so would have a low potential to impact recreational resources or facilities.

3.9 Air Quality

3.9.1 Proposed Project

The project would generate localized pollutant emissions from the construction equipment over the entire construction duration, 13 months for the overhead segment and 12 months for the underground segment. Vehicular emissions associated with maintenance and repair of the transmission line would be the only long-term sources of emissions during the operational phase of the project.

Overhead Segment. Dust emissions would be caused by construction activities especially during site preparation and installing structure foundations, when travel would occur on unpaved roads and surfaces that would create fugitive dust. Use of construction equipment and emissions from motor vehicles would also adversely affect air quality because mobilization of the workforce and materials for construction would emit pollutants that could contribute to existing elevated concentrations of PM₁₀ or ozone in the region. Implementation of the Applicant Proposed Measures along with Bay Area Air Quality Management District recommendations would control dust emissions, and PG&E would reduce equipment emissions by encouraging carpooling and limiting vehicle idling time. These strategies are included in the mitigation measures that would reduce these potentially significant air quality impacts to less than significant levels.

The soils within the project area require special consideration for air quality impacts. Construction activity that involves travel on serpentinite soils or disturbing serpentinite surfaces can lead to airborne emissions of dusts that contain the mineral asbestos. The extent of the serpentinite rock is limited mainly to areas near the Jefferson Substation, the Ralston Substation, and San Bruno Mountain. The Governor's Office of Planning and Research and the California Air Resources Board have each established recommendations and requirements that would minimize the likelihood of this material becoming airborne, which would reduce the potential health hazards. Implementation of the appropriate recommendations and requirements would reduce this impact to a less than significant level.

Underground Segment. Along the underground segment, dust emissions and equipment exhaust emissions would locally affect air quality. The concern about encountering serpentinite soils would also apply to portions of the underground transmission line work on San Bruno Mountain because serpentinite rock may be encountered there. Mitigation measures to control emissions in a manner consistent with Bay Area Air Quality Management District and California Air Resources Board recommendations would remain relevant to the underground segment. Implementing the recommended mitigation measures would reduce all air quality impacts to a less than significant level.

3.9.2 Alternatives

The air quality impacts for each alternative would vary depending on their likelihood of creating a nuisance during construction, especially related to the proximity of sensitive receptors. In general, all alternatives would cause similar air quality impacts, which means that the mitigation measures for the Proposed Project would remain appropriate regardless of alternative.

Southern Segment Alternatives

Route Option 1B. Route Option 1B would involve a substantial amount of underground work near residences in Hillsborough and Burlingame, which would be more likely to cause a nuisance during construction. With mitigation, the air quality impacts would be less than significant.

Partial Underground Alternative. The Partial Underground Alternative would reduce the likelihood of a construction nuisance compared to Route Option 1B, but would still increase underground work near residences in the San Mateo Highlands and Hillsborough when compared to the Proposed Project, which would be more likely to cause a nuisance during construction. With mitigation, the air quality impacts would be less than significant.

Northern Segment Alternatives

There are two transition station alternatives and multiple underground transmission line route alternatives. Each would require construction work near a variety of uses that would be sensitive to air pollutants including residences, schools, parks, and hospitals. The emissions between each alternative would not be substantially different, and the differences in air quality impacts depend on whether sensitive land uses would be encountered along the alternative routes. The Modified Existing 230 kV alternative would somewhat decrease the number of residences and schools encountered along the route, which would substantially reduce the likelihood of a nuisance. Regardless of the transition station and underground alternatives, with mitigation, all air quality impacts would be less than significant.

No Project Alternative

Without the Proposed Project, PG&E could be forced to upgrade other existing facilities or add new transmission and generation capacity elsewhere to compensate for existing system limitations and

anticipated future loads. Construction of any alternative PG&E facilities would occur in the San Francisco Bay Area air basin and construction activities related to new transmission or generation facilities would cause potentially significant air quality impacts related to dust and exhaust emissions. If new generation facilities would be needed, the air quality impacts caused by any new power plant could be significant.

3.10 Noise and Vibration

3.10.1 Proposed Project

Overhead Segment. Construction of the overhead segment would require short-term use of cranes, augers, compressors, air tampers, generators, trucks, and other equipment. Helicopters would also be needed to transport construction materials, remove and install new towers, and to string the conductors for the overhead line. Night work could be necessary to cross I-280. Pile driving would be needed only at the San Mateo and Martin Substations. During the anticipated 13 months necessary to construct the transmission line, transition station, and substation modifications, the intermittent construction noise and vibration impacts from the Proposed Project would be potentially significant. Proper noise suppression techniques and coordination of activities with property owners and occupants would reduce the construction noise and vibration impacts to less than significant levels.

Once operational, noise from the overhead transmission line would occur from corona discharge and minor inspection or maintenance activities. Corona noise would not cause a significant impact because it would not generally exceed ambient noise levels, and inspection and maintenance along the overhead route would not change substantially when compared to the existing conditions.

Underground Segment. Construction of the underground segment would require short-term use of backhoes, boring equipment, dump trucks, mobile cranes, haul trucks, and street sweepers, and night work would probably be necessary in several areas where daytime traffic cannot be rerouted. During the anticipated 12 months necessary to construct the underground line, the intermittent noise and vibration impacts would be potentially significant. With proper noise suppression techniques and coordination of activities with property owners and occupants, construction noise and vibration impacts would be reduced to less than significant levels.

Improvements related to the Proposed Project would permanently increase noise levels at the Martin Substation and contribute to noise that presently does not conform with the local guidelines. Because of the excessive noise in the existing conditions around the Martin Substation, operation of the project would not noticeably change noise levels there. Impacts would be potentially significant, but mitigable to less than significant levels.

3.10.2 Alternatives

The noise and vibration impacts for each alternative would vary depending on their likelihood of creating a nuisance during construction, especially related to the proximity of sensitive receptors. In general, all alternatives would cause similar noise and vibration impacts, which means that the mitigation measures for the Proposed Project would remain appropriate regardless of alternative.

Southern Segment Alternatives

Route Option 1B. Route Option 1B would involve a substantial amount of underground work near residences in Hillsborough and Burlingame, which would be more likely to cause a nuisance during construction. With mitigation, the noise and vibration impacts would be less than significant.

Partial Underground Alternative. The Partial Underground Alternative would reduce the likelihood of a construction nuisance compared to Route Option 1B, but would still increase underground work near residences in the San Mateo Highlands and Hillsborough when compared to the Proposed Project, which would be more likely to cause a nuisance during construction. With mitigation, the noise and vibration impacts would be less than significant.

Northern Segment Alternatives

There are two transition station alternatives and multiple underground transmission line route alternatives. Each would require construction work near a variety of uses that would be sensitive to noise and vibration including residences, schools, and parks. The impacts between each alternative would not be substantially different, and the differences in noise or vibration impacts depend on whether sensitive land uses would be encountered along the alternative routes. The Modified Existing 230 kV alternative would somewhat decrease the number of residences and schools encountered along the route, which would substantially reduce the likelihood of a nuisance. Regardless of the transition station and underground alternatives, with mitigation, all noise and vibration impacts would be less than significant.

No Project Alternative

The No Project Alternative includes installing new generation capacity in the City and County of San Francisco or nearby to compensate for existing transmission system limitations and anticipated loads. New generation would need to comply with local noise ordinances and the CEC licensing process, which would be likely to reduce noise impacts to a less than significant level. Other possible scenarios under the No Project Alternative (such as conservation or curtailment of electrical service) would not result in any new noise impact.

3.11 Transportation & Traffic

3.11.1 Proposed Project

Overhead Segment. Overhead line construction activities would have minimal impacts to area traffic or roadways because the route is in an existing easement and most access would be from undeveloped areas. Construction would require temporary lane and road closures (including closure of I-280), especially during use of helicopters and while stringing conductors across the freeway. Impacts would require implementation of mitigation measures requiring preparation of Transportation Management Plans, management of road closures, and provision of access to emergency vehicles. Implementation of mitigation measures would reduce all significant impacts to less than significant levels.

Underground Segment. All of the impacts described for the overhead segment of the project would also occur along the underground segment of the Proposed Project, but because much of the underground segment would be constructed in roadways, impacts on traffic and transportation would be more severe. These potentially significant impacts would be mitigated by implementation measures that require the development of a Transportation Management Plan, restriction of lane closures, and provisions to adequately repair roads damaged during construction. Other mitigation measures recommended to reduce transportation/traffic related construction impacts would require maintenance of property access, coordination to ensure emergency service access during construction, and avoidance of the City of San Bruno's Grade Separation Project by a reroute. The following short-term impacts would occur during construction: obstacles to pedestrian and bicycle circulation and safety, short-term elimination of parking spaces, and disruption of public transit operations. PG&E's proposed Applicant Proposed Measures would also be required and monitored for appropriate implementation.

3.11.2 Alternatives

Southern Segment Alternatives

Route Option 1B. Route Option 1B would be constructed within Cañada Road, Skyline Boulevard, and other roads, so would have greater impacts to traffic than the proposed overhead segment. The types of impacts are described above for the Proposed Project's underground segment; all mitigation defined there would also apply to this alternative. This alternative would create an additional impact: the potential conflict with a planned San Mateo County Bridge Replacement Project at the Crystal Springs Dam. Mitigation is recommended to ensure that PG&E coordinates with the County to minimize effects on the bridge project. Also, Route Option 1B would require construction in El Camino Real, a heavily traveled major highway through the Peninsula. Construction disturbance would be short-term and less than significant with mitigation, but it would still cause traffic disruption greater than other alternatives. This alternative would also allow avoidance of the San Bruno Avenue/Huntington Avenue grade separation project with implementation of the reroute recommended for the Proposed Project.

Partial Underground Alternative. Traffic and transportation impacts of this alternative would be the same as those of the Proposed Project, because the routes are similar and no additional roadways would be affected.

Northern Segment Alternatives

Transition Station Alternatives. Neither the Sneath Lane or West of Skyline Transition Station alternatives themselves would create traffic impacts. However, all of the routes leaving these transition stations would travel underground within or across Skyline Boulevard, where short-term traffic impacts would be disruptive. Also, the Sneath Lane and Westborough Boulevard underground routes from the West of Skyline Transition Station both have the potential to conflict with the City of San Bruno's plans to widen Skyline Boulevard between San Bruno Avenue and Sneath Lane. Because the City has not yet secured funding for the road-widening project, its future implementation is speculative at this time.

The northern segment alternatives, because they would all be underground, would all have similar impacts to those of the Proposed Project's underground segment. All impacts would be mitigable to less than significant levels; the variation in impact would depend on the length of construction within high-traffic roadways. All impacts would be short-term and less than significant with implementation of mitigation recommended for the Proposed Project.

No Project Alternative

The No Project Alternative scenario includes utility upgrades and construction of new generation within the CCSF, resulting in potential impacts to traffic and transportation during construction. Specific potential impacts would have to be assessed at the time other projects were proposed. In the short-term, improvements would be made to the existing electrical supply system, which would result in minor temporary traffic impacts at each construction site.

3.12 Socioeconomics

3.12.1 Proposed Project

Overhead Segment. The two primary impact issues considered for Socioeconomics is whether the Proposed Project and alternatives would induce demand for labor or displace people or existing housing. The Proposed Project is designed to accommodate the electric transmission infrastructure needs required

by a growing population in the Bay Area. While the project will require a sizable labor force (approximately 100 to 200 crew members) to complete installation of the overhead transmission line over the course of 13 months, a large labor force exists in the Bay Area to accommodate the labor needs of the project. It is not expected that the project would require more workers than could be found in the Bay Area and require people to relocate to the region. As the labor force for the project could be drawn from Bay Area residents, the project would not likely cause a displacement of people or housing. The purpose of the project is to respond to increases in the growth of Bay Area populations by increasing the reliability of the region's electric transmission system. As such, it is not expected that this project would cause population in the area to increase. Because the project is not expected to result in any significant socioeconomic impacts, no socioeconomic mitigation measures have been recommended.

Underground Segment. Underground construction would require a total of approximately 50 more workers than the overhead segment over a period of 12 months. Similar to the discussion of the overhead segment, the project is not expected to result in any significant socioeconomic impacts and no socioeconomic mitigation measures have been recommended.

3.12.2 Alternatives

Southern Segment Alternatives

Route Option 1B. Route Option 1B would be slightly longer than the Proposed Project and so would require additional labor and would also require additional labor to inspect a second, separate utility corridor from the existing 60 kV transmission line corridor. More labor would be required than for the Proposed Project, but the effects would still be less than significant.

Partial Underground Alternative. The Partial Underground Alternative is approximately one mile longer than the proposed route and would require additional construction due to trenching for the underground portions of this alternative. More labor would be required than for the Proposed Project, but the effects would still be less than significant.

Northern Segment Alternatives

Transition Station Alternative. The West of Skyline and Sneath Lane Transition Station Alternatives would be similar in size and nature to the proposed transition station. Therefore, the environmental impacts associated with construction and operation would be the same as those associated with the Proposed Project.

Underground Transmission Line Routes. While the socioeconomic impacts resulting from the alternatives are largely the same as those identified for the Proposed Project, due to differences in the lengths of alternatives, some alternatives will require more or less workers over different periods than the Proposed Project.

No Project Alternative

The transmission upgrades and new generation included in the No Project Alternative scenario would require construction, potentially adding to the area's workforce for short periods of time. However, the No Project Alternative would result in no population growth. Impacts to labor and housing as a result of the No Project Alternative would also be less than significant.

3.13 Public Services & Utilities

3.13.1 Proposed Project

Overhead Segment. Impact issues include the potential for utility system disruptions, public service system disruptions, and project-required utility demands. Impacts associated with utility disruptions are considered significant, but mitigable or were found to be adverse, but less than significant requiring no mitigation. Project construction in the overhead segment would have the potential to disrupt utility systems along the route and restrict access for emergency vehicles or to public facilities, and would also require water or generate waste or wastewater that would need to be accommodated by local facilities. Excavation for installation of transmission towers and overhead lines could require that utilities in an area be temporarily interrupted while construction occurs in an area. Similarly, unplanned, accidental disruptions of utilities could occur during excavation. In either of these cases, this interruption of services could severely disrupt utilities and hinder activities along the project route. Construction along roads and across highways could also restrict access for emergency vehicles or could block entrances to public facilities such as schools, hospitals, or parks.

These construction activities would also require water for dust suppression and street cleaning and would generate waste in the form of steel from the towers that will be removed, concrete from tower foundations, and soil from excavation. Water required for the project would be a relatively insignificant amount compared to the Bay Area's existing water supply, and the waste generated would largely be recycled in local facilities. Materials that could not be recycled and would be disposed of in landfills also make up a small amount compared to the total waste accommodated by local landfills.

Mitigation measures have been developed to reduce the impacts to utility systems and resulting from access restrictions. Two mitigation measures have been designed to address impacts to utility systems: one for planned utility interruptions and one for unplanned, accidental disruptions. The first mitigation measure requires that PG&E notify the public when a planned service interruption will occur. The second mitigation measure requires that PG&E submit its construction plans with the finalized route alignment for review by the appropriate jurisdictions. Two mitigation measures have been developed in other sections that address the issues of restricted access for emergency vehicles and to public facilities. In Section D.12 (Transportation and Traffic), a mitigation measure has been developed requiring PG&E to create an Emergency Vehicle Access Plan to ensure that emergency vehicles will not be impeded by the project. In Section D.9 (Recreation), a mitigation measure was developed which requires PG&E to avoid construction in front of access points to public recreational facilities during weekends and holidays, and also requires public notification of construction at these locations two weeks in advance.

Underground Segment. As with the overhead segment, project construction in the underground segment would have the potential to disrupt utility systems along the route and restrict access for emergency vehicles or to public facilities, and would also require water or generate waste or wastewater that would need to be accommodated by local facilities. Trenching for the underground segment or installation of the underground transmission duct banks could require that utilities in an area be temporarily interrupted while construction occurs in an area. Similarly, unplanned, accidental disruptions of utilities could occur during excavation or trenching. In either of these cases, this interruption of services could severely disrupt utilities and hinder activities along the project route. Construction along roads and across highways could also restrict access for emergency vehicles or could block entrances to public facilities such as schools, hospitals, or parks. These construction activities would also require water for dust suppression and street cleaning and would generate waste in the

form of asphalt from streets and soil from excavation. Water required for the project would be a relatively insignificant amount compared to the Bay Area's existing water supply, and the waste generated would largely be recycled in local facilities. Materials that could not be recycled and would be disposed of in landfills also make up a small amount compared to the total waste accommodated by local landfills.

Mitigation measures, mentioned in the overhead segment discussion above, have been developed to reduce the impacts to utility systems and resulting from access restrictions to less than significant.

3.13.2 Alternatives

Southern Segment Alternatives

Route Option 1B. Route Option 1B, with large portions of the alignment trenched underground in roads, would have a significantly higher potential for disrupting utilities and restricting traffic access. However, similar mitigation to the Proposed Project would ensure that impacts are reduced to less than significant levels.

Partial Underground Alternative. The Partial Underground Alternative would have a higher potential for utility disruptions due to trenching along parts of the alignment, but would have fewer impacts due to access restrictions because it has fewer road crossings. It would require similar mitigation to the Proposed Project to ensure that impacts are reduced to less than significant levels.

Northern Segment Alternatives

West of Skyline Transition Station Alternative. There would be no substantial differences in impacts between the proposed transition station and the West of Skyline Boulevard transition station. Mitigation similar to the Proposed Project would ensure that impacts are reduced to less than significant levels.

Sneath Lane Transition Station Alternative. The Sneath Lane Transition Station Alternative would also largely be the same as the Proposed Project, but because the station would be adjacent to PG&E's existing Sneath Substation, the Applicant would likely have knowledge of the utilities in the immediate vicinity, lowering the risks of accidental utility disruption impacts. The mitigation measures recommended for the Proposed Project would reduce any impacts to less than significant.

Underground Transmission Line Routes. The public service system and utility impacts of the alternatives are largely of the same type and magnitude as described for the Proposed Project, and all would require similar mitigation to ensure that impacts are reduced to less than significant levels. Length differences, location of public service providers, and existing utilities in roadways affect the potential for utility disruption impacts and the degree of access restriction that would result from construction and maintenance operations of the alternatives compared to the Proposed Project. With all of the northern segment alternatives, mitigation similar to the Proposed Project would ensure that public service and utilities impacts are reduced to less than significant levels.

No Project Alternative

Under the No Project Alternative scenario, new generation, load-dropping, and demand-side management could reduce the potential for utility disruption impacts and increase the reliability of the power supply, but the potential for utility disruption would remain. In this alternative, curtailment of electric service in the form of rolling blackouts could occur, with priority service continuing to be supplied to essential services. Impacts would be significant. As essential services would not be interrupted, however, impacts to public facilities and emergency vehicle access would be adverse, but less than significant.

4. Summary Comparison of the Proposed Project and Alternatives

4.1 Methodology

CEQA requires identification of an environmentally superior alternative, but does not provide specific direction regarding the methodology of alternatives comparison. Each project must be evaluated for the issues and impacts that are most important; this will vary depending on the project type and the environmental setting. Issue areas that are generally given more weight in comparing alternatives are those with long-term impacts (e.g., visual impacts and permanent loss of habitat or loss of use of recreational facilities). Impacts associated with construction (i.e., temporary or short-term) or those that are easily mitigable to less than significant levels are considered to be less important.

The methodology used to compare alternatives in this EIR started with identification of alternatives. Based on alternatives suggested during scoping, an intensive evaluation process was completed that resulted in the determination that the EIR would analyze two transmission line alternatives in the southern segment, five transmission line alternatives in the northern segment, and two alternative transition station locations. A No Project Alternative was also identified. While 19 other alternatives were evaluated, they did not meet CEQA criteria for analysis (as defined in Section 2 above). The second step required assessment of the environmental impacts of the Proposed Project and the alternatives. The third step was the comparison of the impacts of each alternative to those of the Proposed Project to determine the environmentally superior alternative. The environmentally superior alternative was then compared to the No Project Alternative.

Although this comparison focuses on the most important issue areas (e.g., land use, visual resources, biological resources, and recreation, with geology also a concern in fault zones), determining an environmentally superior alternative is difficult because of the many factors that must be balanced. While the EIR identifies an environmentally superior alternative, it is possible that the ultimate decision-makers could balance the importance of each impact area differently and reach a different conclusion.

4.2 Summary of Significant (Class I) Unmitigable Impacts

Southern Segment. Table ES-1 lists the significant impacts in the southern (overhead) segment of the Proposed Project. In this segment, the Proposed Project would create significant (Class I) impacts in visual resources at five key viewpoints, from Edgewood Park in the south to the I-280 crossing just south of Trousdale Avenue. In addition, significant unmitigable impacts were identified for recreation and biological resources, both because of the high value of Edgewood Park habitat and recreational experiences.

PG&E's Underground Route Option 1B would eliminate all significant visual impacts identified for the Proposed Project's southern segment. It would create two significant impacts (visual and recreation resources) if an overhead crossing of Crystal Springs Dam is used, but no significant impacts would result with the use of an underwater cable around the dam. This alternative would also eliminate the impacts associated with the transition station, since the entire project would be underground.

The Partial Underground Alternative would also eliminate all of the Proposed Projects' significant impacts. However, it would create two new significant visual impacts (along Cañada Road near Edgewood Road, and at the I-280 crossing south of Carolands Substation).

Transition Station Alternatives. The Proposed Project would require a transition station where the overhead southern segment would connect to the underground line. Two transition station alternatives are considered: the West of Skyline Transition Station and the Sneath Lane Transition Station. As illustrated in Table ES-1, the proposed transition station would have significant (Class I) visual impacts

and conflict with planned future development at the site. In addition, the potential for rupture of the San Andreas Fault creates a significant (Class I) impact at the transition station. The West of Skyline and Sneath Lane Transition Station Alternatives would both eliminate the significant visual and land use impacts of the proposed site, and would retain the same impact related to the fault crossing.

Northern Segment. No significant and unmitigable (Class I) impacts were identified for the northern (underground) segment of the Proposed Project. One of the five alternatives (Junipero Serra Alternative) has a significant impact that results from an extended distance of underground transmission line within the San Andreas Fault zone.

Table ES-1. Southern Segment & Transition Station: Summary of Significant Unmitigable (Class I) Impacts by Alternative

Alternative	Significant Impacts (Class I)
Proposed Project, Overhead Segment	V-2, V-3, V-9, V-12, V-13, and L-3: Key Viewpoints at Edgewood County Park, Interstate 280 Southbound, Lexington Avenue, Black Mountain Road, and north of the Carolands Substation B-1: Temporary and permanent loss of sensitive vegetation communities; serpentine grassland R-3: Operation-Related Impacts to Edgewood County Park and Preserve
Proposed Project, Transition Station	L-6: Conflict with planned future development at transition station site ^a V-20: Substantial introduction of industrial character, structural prominence, and view blockage when viewed from Skyline Boulevard, San Bruno Avenue, and the Sky Crest Center ^a G-8: Surface fault rupture at crossings of active and potentially active fault traces; proposed transition station

Class I Impacts Eliminated or Created by Alternative to Overhead Segment and Alternative Transition Stations

PG&E Underground Route Option 1B	Eliminates V-2, V-3, V-9, V-12, V-13, B-1, and R-3 Eliminates Proposed Project transition station impacts: L-6 (conflict with future development), V-20 (visual impact of transition station), and G-8 (active fault crossing) V-22: Visual Impact of overhead crossing of Crystal Springs Dam ^b R-3: Recreation/Operation-Related Impacts to Crystal Springs Dam ^b
Partial Underground Alternative	Eliminates V-2, V-3, V-9, V-12, V-13, B-1, and R-3. V-23: Visual impact at Cañada Road between I-280 and Edgewood Road V-24: Visual impacts from transition stations V-25: Visual impact at crossing of I-280 at Tower 8/50 and Crystal Springs Golf Course
Sneath Lane and West of Skyline Transition Stations	Eliminate Proposed Project Transition Station Impacts L-6 and V-20. G-8: Surface fault rupture at crossings of active and potentially active fault traces

^a Relocation of the transition station with the Transition Station Alternatives or selection of Route Option 1B for the southern segment could avoid these Class I impacts. ^b Avoiding the dam by using an underwater cable would avoid these Class I impacts.

4.3 Environmentally Superior Alternative

Southern Segment. Either of the Southern Segment alternatives (PG&E Route Option 1B and Partial Underground Alternative) would eliminate multiple permanent and significant visual impacts of the Proposed Project. Comparing the Route Option 1B Alternative with the Partial Underground Alternative indicates that the potentially significant impacts to visual, cultural, biological, and recreation resources could be avoided by selecting the Route Option 1B Alternative with a submarine cable for crossing the Crystal Springs Dam. The Partial Underground Alternative is less desirable because of significant unmitigable visual impacts (along Cañada Road near Edgewood Road, at two transition structure locations, and at the I-280

crossing south of Carolands Substation). Route Option 1B with a submarine cable is the preferred alternative because it minimizes permanent impacts to the most relevant areas of land use, visual, and biology.

Table ES-2 summarizes the comparison of the Proposed Project with the two southern segment alternatives.

Transition Station. The proposed transition would permanently conflict with planned land uses for recreational purposes and degrade visual resources. These impacts could be avoided with either alternative transition station site, but the Sneath Lane Transition Station with the Sneath Lane Underground Route would be preferred because it would simultaneously minimize land use, visual, and recreation impacts due to its location adjacent to an existing substation. Table ES-3 summarizes the comparison of the transition stations.

Table ES-2. Proposed Project vs. PG&E Underground Route Option 1B and Partial Underground Alternative

Issue Area	Proposed Project, Overhead Segment	PG&E Route Option 1B	Partial Underground Alternative
Land Use	Most likely to cause permanent conflicts with adopted biology and visual quality policies	Preferred because no transition station is needed and fewer policy conflicts would occur.	Likely to cause some permanent policy conflicts, although reduces impacts to open spaces
Visual Resources	Greatest permanent visual impacts along I-280 and residential areas	Preferred , although with overhead crossing of Crystal Springs Dam would permanently introduce transition stations (avoided if a submarine cable is used)	Greater permanent visual impacts along Crystal Springs Golf Course, although eliminates visual impacts for residential areas east of I-280
Biological Resources	Most construction in sensitive areas and increased permanent disruption of sensitive areas	Preferred because construction would be in roadways, minimizing habitat disturbance	Underground construction in a sensitive area, although would eliminate new towers and permanent disruptions within Edgewood Park and the Pulgas Ridge Preserve and adjacent to Burlingame
Cultural Resources	Preferred because ground disturbance would be least	Most potential for construction at historic Crystal Springs Dam and along Trousdale Drive and most risk from underground construction, but impacts near the dam could be avoided with a submarine cable	Requires underground construction that would increase the risk of encountering previously unknown cultural resources
Geology	High exposure to San Andreas Fault	Preferred because it avoids San Andreas Fault crossing near San Bruno Avenue	High exposure to San Andreas Fault
Hydrology and Water Quality	Preferred because construction disturbance would be least	More construction work across watercourses, although minimal disturbance to Peninsula Watershed	More construction work across watercourses and near San Andreas Lake
Public Health and Safety	Preferred because route is in undeveloped areas with minimal existing contamination	Most likely to encounter contaminated areas during underground construction	More likely to encounter contaminated areas during underground construction
Recreation	Permanent degradation of recreation at Edgewood County Park and Preserve	Permanent degradation of recreational experience with overhead crossing of Crystal Springs Dam (avoided with a submarine cable); longest duration of construction disruption in Cañada Road	Preferred because construction and operation would avoid highest-use recreation areas

Air Quality	Preferred because construction disturbance would be least	Longest duration of construction and underground work	Longer duration of construction and underground work
Noise and Vibration	Preferred because construction disturbance would be least	Longest duration of construction and underground work	Longer duration of construction and underground work
Transportation and Traffic	Preferred because construction would affect fewest roadways	Most construction in roadways	Some construction along roadways
Socioeconomics	No preference	No preference	No preference
Public Services and Utilities	Preferred because of low likelihood of disrupting utilities during construction	Most likely to disrupt services during underground work	More likely to disrupt services during underground work

Table ES-3. Comparison of Three Transition Station Alternatives

Issue Area	Proposed Project, Transition Station	West of Skyline Boulevard Transition Station	Sneath Lane Transition Station
Land Use	Most likely to cause permanent policy conflicts and conflicts with land use designation and planned development	Could cause conflicts for policies for biological resources or tree ordinances during construction	Preferred because of existing compatible adjacent land use (substation)
Visual	Most visually prominent location with permanent public exposure	More visually prominent because site is not adjacent to existing development	Preferred because of adjacent industrial facility (substation)
Biology	Preferred , because station site is disturbed and unvegetated	Station site is presently undisturbed and vegetated	Although station site is disturbed and unvegetated, additional overhead towers would be needed to reach Sneath Lane, increasing permanent bird collision hazards
Cultural	Preferred because least underground construction would be required	More underground construction work needed for connections	More underground construction work needed for connections
Geology	Preferred because of shortest exposure of underground cable to San Andreas Fault zone	Permanently exposed to seismic hazards by being located directly on active traces of San Andreas Fault	Permanently exposed to seismic hazards by being located immediately adjacent to active traces of San Andreas Fault, similar to Proposed Project, but also forces underground crossing of fault
Hydrology and Water Quality	Preferred because construction in Watershed would be minimized	More construction work occurs in the Peninsula Watershed	Additional construction work would be needed in the Peninsula Watershed to reach Sneath Lane
Public Health	Construction could encounter contaminated areas within 0.25 miles of site but none are recorded	Preferred because of few known contaminated sites	Construction work occurs near residential area; 3 contaminated sites identified.
Recreation	Permanently precludes use of site for trailhead parking	Introduces permanent industrial structure adjacent to San Andreas Trail	Preferred because no recreational facilities would be affected
Air Quality	Construction work occurs near homes	Preferred because construction would be farthest from receptors	Construction work occurs near school and homes
Noise and Vibration	Construction work occurs near homes	Preferred because construction would be farthest from receptors	Construction work occurs near school and homes
Transportation and Traffic	No preference	No preference	No preference
Socioeconomics	No preference	No preference	No preference

Table ES-3. Comparison of Three Transition Station Alternatives

Issue Area	Proposed Project, Transition Station	West of Skyline Boulevard Transition Station	Sneath Lane Transition Station
Public Services and Utilities	No preference	No preference	No preference

Northern Segment. The comparison for the northern segment is between the Proposed Project vs. the Modified Underground Existing 230 kV Collocation Alternative. As stated above, the Proposed Project would not cause any significant, unavoidable impacts in the underground segment. As discussed above, the preferred alternative for the southern segment is Route Option 1B. Selecting that alternative would avoid multiple significant, unmitigable impacts including impacts related to the proposed transition station. The northern end of this alternative is at the intersection of El Camino Real and San Bruno Avenue in the City of San Bruno. From this location, two alternatives could not be used (the Junipero Serra and Cherry Avenue Alternatives). However, the Proposed Project, Route Option 4B, and the Modified Underground Existing 230 kV Collocation Alternative would each be available.

The collocation alternative is substantially shorter (with approximately 3.7 fewer miles of underground construction than the proposed underground route) and can avoid short-term, construction-related impacts to many residential areas, recreational facilities, and important transportation corridors. Potential construction-related impacts related to cultural resources and public health under this alternative would be reduced by mitigation identified in this EIR. This route would also minimize impacts to residential, recreational, and transportation uses in northern San Mateo County. No other alternative to the Proposed Project would minimize the short-term, construction-related impacts as effectively. Therefore, the environmentally superior alternative for the northern segment is the Modified Underground Existing 230 kV Collocation Alternative. Table ES-4 summarizes the comparison of this alternative with the Proposed Project route.

Table ES-4. Proposed Project vs. Modified Underground Existing 230 kV Collocation Alternative

Issue Area	Proposed Project, Underground Route	Modified Underground Existing 230 kV Collocation Alternative
Land Use	Requires more construction work in residential and commercial areas	Preferred because most land uses are industrial and route is shorter
Visual	No preference	No preference
Biology	No preference	No preference
Cultural	Preferred because fewer cultural resources are anticipated	Requires more work in Bay Shore area and near prehistoric resources east of San Bruno Mountain during construction
Geology	Requires more excavation into native undisturbed soils and potentially fossil-bearing rock during construction	Preferred because of soil conditions
Hydrology and Water Quality	Preferred because of distance to Bay for sedimentation impacts	Requires directional drilling in streams near San Francisco Bay during construction
Public Health	Preferred because of fewer known contaminated sites	Higher likelihood of encountering contaminated sites and contaminated groundwater during construction
Recreation	Forces construction work in Hillside Boulevard Bikeway and work near many other recreational facilities, especially in San Bruno Mountain State and County Park	Preferred because of fewer recreational facilities affected
Air Quality	Requires more construction work in residential areas	Preferred because construction would be farthest from receptors

Noise and Vibration	Requires more construction work in residential areas	Preferred because construction would be farthest from receptors
Transportation and Traffic	Requires four additional miles of construction work in roads	Preferred because of shorter overall construction in roads
Socioeconomics	No preference	No preference
Public Services and Utilities	More potential for temporarily restricted access to public facilities (schools, parks, and hospitals) during construction	Preferred because of fewer public facilities

Conclusion. Based on the analysis summarized above, the environmentally superior alternative is illustrated in Figure ES-3 and comprises Route Option 1B with mitigation and the optional submarine cable at the Crystal Springs Dam in conjunction with the Modified Underground Existing 230 kV Collocation Alternative with mitigation. The environmentally superior alternative would be approximately 25 miles long, as compared with approximately 27 miles for the proposed route.

Figure ES-3. Environmentally Superior Alternative

For security reasons this figure is not included in the online version of the report.

Second allowed page for color figure

4.4 Environmentally Superior Alternative vs. No Project Alternative

The Environmentally Superior Alternative would be located entirely underground and in areas with few impacts on residences or other sensitive land uses. Long-term impacts would be minimal. In comparison, the most significant impact of the No Project Alternative is its likelihood of creating long-term air emissions and noise impacts. In addition, the No Project Alternative has the potential to result in electric service disruption. Overall, the Environmentally Superior Alternative, as illustrated on Figure ES-3, is preferred over the No Project Alternative.

5. Impact Summary Tables

Table ES-5 and ES-6 on the following pages summarize all identified impacts of the Proposed Project (Table ES-5) and alternatives (Table ES-6). For each impact, the following information is presented: impact number and title, impact class (Class I, II, III, or IV), applicable mitigation measure, and residual impact (whether significant or less than significant).

Table ES-5. Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class ^a	Mitigation Measure(s)	Residual Impact
Land Use			
L-1: Conflict with biological resources policies.	Class II	Mitigation Measures B-1b, B-1c, B-3a, and B-3b (below)	Less than significant
L-2: Conflict with county tree ordinances.	Class II	Mitigation Measure B-2b (below)	Less than significant
L-3: Conflict with county visual quality policies.	Class I	Mitigation Measures V-1a to V-20b (below)	Significant
L-4: Construction nuisances or disturbances to residents, businesses or sensitive land uses.	Class III	L-4a: Provide construction notification. L-4b: Provide public liaison person and toll-free information hotline.	Less than significant
L-5: Interference with SFPUC maintenance activities.	Class II	L-5a: Coordinate with SFPUC within Peninsula Watershed.	Less than significant
L-6: Conflict with planned future development at proposed transition station site.	Class I	None	Significant
L-7: Disrupted access to businesses and residences.	Class III	L-7a: Provide continuous access to properties. L-7b: Coordinate with businesses.	Less than significant
Visual Resources			
V-1: Visibility of construction activities and equipment.	Class III	V-1a: Reduce visibility of construction activities and equipment.	Less than significant
V-2: Key Viewpoint 1 – Edgewood County Park.	Class I	None	Significant
V-3: Key Viewpoint 2 – Interstate 280 Southbound.	Class I	None	Significant
V-4: Key Viewpoint 3 – Interstate 280 Northbound.	Class III	None	Less than significant
V-5: Key Viewpoint 4 – Cañada Road at Filoli Center.	Class II	V-5a: Eliminate Tower 2/13.	Less than significant
V-6: Key Viewpoint 5 – I-280 Southbound Vista Point.	Class III	V-6a: Paint towers with appropriate colors.	Less than significant
V-7: Key Viewpoint 6 – Cañada Road.	Class III	Mitigation Measure V-8a (below)	Less than significant
V-8: Key Viewpoint 7 – I-280 Southbound at SR 92.	Class II	V-8a: Relocate Towers between 3/18 and Tower 4/25. Mitigation Measure V-6a (above)	Less than significant
V-9: Key Viewpoint 8 – Lexington Avenue.	Class I	V-9a: Eliminate Towers 5/29, 5/31 and 6/33.	Significant
V-10: Key Viewpoint 9 – Crystal Springs Rest Area.	Class II	V-10a: Eliminate Tower 7/40.	Less than significant
V-11: Key Viewpoint 10 – Interstate 280 Southbound.	Class III	Mitigation Measure V-10a (above)	Less than significant
V-12: Key Viewpoint 11 – Black Mountain Road.	Class I	V-12a: Eliminate Towers 7/42, 7/45, and 8/47.	Significant
V-13: Carolands Substation to transition station.	Class I	V-13a: Eliminate Towers 10/64 and 10/66.	Significant
V-14: Key Viewpoint 12 – Crystal Springs Golf Course.	Class II	V-14a: Eliminate Towers 9/56, 9/58, and 9/60. Mitigation Measure V-6a (above)	Less than significant

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

Table ES-5. Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class^a	Mitigation Measure(s)	Residual Impact
V-15: Key Viewpoint 13 – I-280 Northbound.	Class II	V-15a: Relocate the proposed Towers 10/68 to 10/69. V-15b: Use steel poles from Tower 10/69 to 14/95. Mitigation Measure V-6a (above)	Less than significant
V-16: Key Viewpoint 14 – Sawyer Camp Trail.	Class II	V-16a: Relocate from Sawyer Camp Trail. Mitigation Measures V-6a and V-15b (above)	Less than significant
V-17: Key Viewpoint 15 – San Andreas Trail.	Class II	V-17a: Relocate Tower 13/84 V-17b: Eliminate proposed Towers 12/80 and 12/82. Mitigation Measures V-6a and V-15b (above)	Less than significant
V-18: Key Viewpoint 16 – Sweeney Ridge / Bay Discovery Site.	Class III	Mitigation Measures V-6a and V-19a	Less than significant
V-19: Key Viewpoint 17 – Skyline Boulevard Northbound.	Class II	V-19a: Eliminate Towers 13/89, 14/91, 14/92, and 14/94. Mitigation Measures V-6a and V-15b (above)	Less than significant
V-20: Key Viewpoint 18 – Transition Station / San Bruno Avenue.	Class I	V-20a: Transition station landscaping.	Significant
V-21: Visual impact of modifications to substations, switchyards, and taps.	Class III	Mitigation Measures V-1a through V-20a	Less than significant
Biological Resources			
B-1: Temporary and permanent loss of sensitive vegetation communities.	Class I (to serpentine grassland); Class II	B-1a: Perform wetlands delineation and avoidance. B-1b: Provide restoration/compensation for vegetation losses. B-1c: Protect serpentine grasslands and Edgewood Park. B-1d: Perform pre-construction surveys and provide monitors. B-1e: Complete rare plant surveys. B-1f: Protect sensitive habitats during construction. B-1g: Implement weed control. B-1h: Negotiate compensation for loss of significant plant communities. B-1i: Implement worker education.	Significant
B-2: Loss or damage to trees.	Class II	B-2a: Compensate for tree loss.	Less than significant
B-3: Erosion and sedimentation.	Class II	B-3a: Complete restoration after construction.	Less than significant
B-4: Wildlife habitat removal.	Class III	Mitigation Measure B-1b (above)	Less than significant
B-5: Direct wildlife mortality.	Class II	B-5a: Protect wildlife during construction.	Less than significant

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

^b Alternatives Abbreviations: PG&E Route Option 1B (1B), Partial Underground (PU), West of Skyline Transition Station (WS), Sneath Lane (SL), Cherry Avenue (CA), Route Option 4B (4B), Modified Existing Underground 230 kV (ME), Junipero Serra (JS)

Table ES-5. Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class^a	Mitigation Measure(s)	Residual Impact
B-6: Wildlife disturbance from human presence.	Class II	Mitigation Measures B-1c, B-1e, B-1f, B-1i, B-5a, B-8a	Less than significant
B-7: Bird electrocution and tower/line collisions.	Class II/III	B-7a: Minimize bird electrocution and collision.	Less than significant
B-8: Habitat removal or disturbance of special status wildlife species.	Class II	B-8a: Protection for special status species. B-8b: Consultation with resource agencies. Mitigation Measures B-1a through B-7a	Less than significant
Cultural Resources			
C-1: Construction operations have the potential to affect known archaeological resources.	Class II	C-1a: Avoid Environmentally Sensitive Areas (ESAs). C-1b: Develop Cultural Resources Treatment Plan (CRTP). C-1c: Conduct construction monitoring.	Less than significant
C-2: Previously undetected cultural resources may be damaged or destroyed during project construction.	Class II	Mitigation Measures C-1b and C-1c (above)	Less than significant
C-3: Construction operations have the potential to impact site P-41-390.	Class II	C-3a: Evaluate historic bridge.	Less than significant
Geology, Soils, and Paleontology			
G-1: Soft or loose soils along alignment may affect tower foundations and footings, excavation stability, and access to construction areas.	Class II	G-1a: Perform geotechnical studies.	Less than significant
G-2: Excavation, grading, or fill placement during construction activities could cause slope instability.	Class II	G-2a: Protect against slope instability.	Less than significant
G-3: Paleontologic resources may be destroyed by construction activities.	Class II	G-3a: Consult a paleontologist.	Less than significant
G-4: Naturally occurring asbestos fibers may be encountered and become airborne through construction activities.	Class II	Mitigation Measure A-3a (below)	Less than significant
G-5: Strong groundshaking from local and regional seismic sources.	Class II	G-5a: Reduce effects of groundshaking.	Less than significant
G-6: Seismically induced ground failures including liquefaction, lateral spreading, seismic slope instability, and ground-cracking.	Class II	G-6a: Geotechnical Investigations for Liquefaction and Slope Instability.	Less than significant
G-7: Slope instability including landslides, earth flows and debris flows.	Class II	G-7a: Geotechnical Surveys for Landslides.	Less than significant
G-8: Surface fault rupture at crossings of active and potentially active fault traces.	Class I (for proposed transition station); Class II	G-8a: Minimize Project Structures Within Active Fault Zone.	Less than significant
G-9: Expansive, soft, loose and/or compressible soils.	Class II	G-9a: Implement Standard Engineering Methods for Problematic Soils.	Less than significant

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

Table ES-5. Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class^a	Mitigation Measure(s)	Residual Impact
G-10: Project may impact access to mineral resources.	Class III	None	Less than significant
G-11: Corrosive soils.	Class II	G-11a: Implement Standard Engineering Methods for Corrosive Soils.	Less than significant
Hydrology and Water Quality			
H-1: Soil erosion and sedimentation from construction activity and access roads.	Class II	H-1a: Control erosion and sedimentation.	Less than significant
H-2: Degradation of surface or groundwater quality through spill of potentially harmful materials used in construction.	Class II	H-2a: Control hazardous substances.	Less than significant
H-3: Increased runoff from new impervious areas.	Class III	None	Less than significant
H-4: Encroachment into a floodplain or watercourse by other permanent project features.	Class II	H-4a: Prevent flood damage.	Less than significant
H-5: Construction in a potential dam inundation area.	Class III	None	Less than significant
H-6: Water quality degradation through project-related excavation.	Class II	Mitigation Measure H-2a (above) Mitigation Measure HAZ-3a (below)	Less than significant
H-7: Water quality degradation caused by accidental releases of oil from substations or transition station.	Class II (for Substations, Switchyards, and Taps); Class III	H-7a: Protect against operational oil releases.	Less than significant
H-8: Exposure of the underground cable to damage through stream scour and erosion.	Class II	H-8a: Prevent scour and erosion.	Less than significant
H-9: Interruption of groundwater flow or modification of groundwater depths during construction of underground transmission line.	Class II	H-9a: Reduce construction effects on groundwater.	Less than significant
Public Health and Safety			
HAZ-1: Potential hazardous substance spills during construction.	Class II	Mitigation Measure H-2a (above)	Less than significant
HAZ-2: Excavation could result in mobilization of existing contamination.	Class II	HAZ-2a: Conduct Phase II investigations.	Less than significant
HAZ-3: Previously unknown contamination could be encountered during construction.	Class II	HAZ-3a: Contaminated Groundwater or Soils. HAZ-3b: Observe exposed soil for contamination.	Less than significant
HAZ-4: Release of hazardous materials during operation at transition station or substations.	Class II	HAZ-4a: Document compliance.	Less than significant

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

^b Alternatives Abbreviations: PG&E Route Option 1B (1B), Partial Underground (PU), West of Skyline Transition Station (WS), Sneath Lane (SL), Cherry Avenue (CA), Route Option 4B (4B), Modified Existing Underground 230 kV (ME), Junipero Serra (JS)

Table ES-5. Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class^a	Mitigation Measure(s)	Residual Impact
PS-1: Radio and television interference.	Class II	PS-1a: Limit the conductor surface electric gradient. PS-1b: Document complaints and responsive action.	Less than significant
PS-2: Induced currents and shock hazards in joint use corridors.	Class II	PS-2a: Reduce effects of induced currents and shocks.	Less than significant
PS-3: Effects on cardiac pacemakers.	Class III	None	Less than significant
PS-4: Wind, earthquake, and fire hazards.	Class III	None	Less than significant
Recreation			
R-1: Increased use of recreational resources.	No impact	None	Less than significant
R-2: Construction disturbance at recreation facilities.	Class II/III	R-2a: Avoid peak use periods and notify on-site. R-2b: Review and approve construction plan for San Bruno Mountain State and County Park. Mitigation Measures V-1a, L-4a, L-4b, L-7a, and T-1a	Less than significant
R-3: Operation-related effects on recreational facilities.	Class I (Edgewood County Park and Preserve); Class II/III	Mitigation Measures V-5a, V-6a, V-8a, V-14a, V-15b, V-16a, V-17a, and V-19a (above)	Less than significant
Air Quality			
A-1: Construction activities would create dust emissions.	Class II	A-1a: Control dust emissions.	Less than significant
A-2: Construction equipment would generate exhaust emissions.	Class II	A-2a: Control exhaust emissions.	Less than significant
A-3: Construction activity could encounter naturally occurring asbestos.	Class II	A-3a: Implement Asbestos Dust Mitigation Plan.	Less than significant
A-4: Operational air quality impacts associated with maintenance and inspections.	Class III	None	Less than significant
A-5: Substation and switchyard work could encounter asbestos-containing materials.	Class III	None	Less than significant
Noise and Vibration			
N-1: Construction activities would temporarily increase local noise levels.	Class II	Mitigation Measures L-4a and L-4b (above)	Less than significant
N-2: Ground-borne vibration could cause a temporary nuisance during construction.	Class II	Mitigation Measures L-4a and L-4b (above)	Less than significant
N-3: Corona noise from operation of the overhead transmission line.	Class III	None	Less than significant
N-4: Noise from inspection and maintenance activities.	Class III	None	Less than significant
N-5: Noise from operation of the Martin Substation with modifications.	Class III	None	Less than significant

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

Table ES-5. Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class ^a	Mitigation Measure(s)	Residual Impact
Transportation and Traffic			
T-1: Temporary road and lane closures.	Class II	T-1a: Prepare Transportation Management Plans. T-1b: Restrict lane closures.	Less than significant
T-2: Traffic generated by construction.	Class III	None	Less than significant
T-3: Physical impacts to roads and sidewalks.	Class II	T-3a: Repair damaged roadways.	Less than significant
T-4: Restricted access to properties.	Class II	Mitigation Measures L-7a and L-7b (above)	Less than significant
T-5: Interference with pedestrian/bicycle circulation and safety.	Class III	None	Less than significant
T-6: Construction interference with emergency response.	Class II	T-6a: Ensure emergency response access.	Less than significant
T-7: Loss of parking.	Class III	None	Less than significant
T-8: Disruption of public transit.	Class III	None	Less than significant
T-9: Conflict with planned transportation projects.	Class II	T-9a: Avoid grade separation. T-9b: Coordinate with San Mateo County's bridge replacement project plans	Less than significant
Socioeconomics			
S-1: Induce demand for labor.	Class III	None	Less than significant
S-2: Displacement of people or existing housing.	Class III	None	Less than significant
Public Services and Utilities			
U-1: Utility system disruptions.	Class II	U-1a: Notify of utility service interruption. U-1b: Protect underground utilities.	Less than significant
U-2: Public service system disruption.	Class III	None	Less than significant
U-3: Project-required utility demands.	Class III	None	Less than significant

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

^b Alternatives Abbreviations: PG&E Route Option 1B (1B), Partial Underground (PU), West of Skyline Transition Station (WS), Sneath Lane (SL), Cherry Avenue (CA), Route Option 4B (4B), Modified Existing Underground 230 kV (ME), Junipero Serra (JS)

Table ES-6. Summary of Impacts and Mitigation for Alternative Routes

Impact	Applicable Alternatives ^b	Impact Class ^a	Mitigation Measure(s)	Residual Impact
Land Use				
L-1: Conflict with biological resources policies.	1B, PU, WS, SL	Class II	Mitigation Measures B-1b , B-1c , B-3a , and B-3b (below)	Less than significant
L-2: Conflict with county tree ordinances.	PU, WS, SL	Class II	Mitigation Measure B-2b (below)	Less than significant
L-3: Conflict with county visual quality policies.	PU, WS, SL	Class I for PU; Class II	Mitigation Measures V-1a to V-20b (below)	Significant
L-4: Construction noise, dust, and odor impacts on residents, businesses or sensitive land uses.	All	Class III	L-4a: Provide construction notification. L-4b: Provide public liaison person and toll-free information hotline. L-4c: Maximize distance from residences (Modified Existing Underground 230 kV Alternative).	Less than significant
L-5: Interference with SFPUC maintenance activities.	PU, WS, SL	Class II	L-5a: Coordinate with SFPUC within Peninsula Watershed.	Less than significant
L-7: Disrupted access to businesses and residences.	All	Class III	L-7a: Provide continuous access to properties. L-7b: Coordinate with businesses.	Less than significant
L-8: Disruption of commercial parking lot (Modified Existing Underground 230 kV Alternative).	ME	Class III	L-8a: Compensate parking lot operator.	Less than significant
Visual Resources				
V-1: Visibility of construction activities and equipment.	All	Class III	V-1a: Reduce visibility of construction activities and equipment.	Less than significant
V-5: Key Viewpoint 4 – Cañada Road at Filoli Center.	PU	Class II	V-5a: Eliminate Tower 2/13.	Less than significant
V-6: Key Viewpoint 5 – I-280 Southbound Vista Point.	PU	Class III	V-6a: Paint towers with appropriate colors.	Less than significant
V-7: Key Viewpoint 6 – Cañada Road.	PU	Class III	Mitigation Measure V-8a (below)	Less than significant
V-8: Key Viewpoint 7 – I-280 Southbound at SR 92.	PU	Class II	V-8a: Relocate Towers between 3/18 and 4/25. Mitigation Measure V-6a (above)	Less than significant
V-15: Key Viewpoint 13 – I-280 Northbound.	PU	Class II	V-15a: Relocate the proposed Towers 10/68 to 10/69. V-15b: Use steel poles from Tower 10/69 to 14/95. Mitigation Measure V-6a (above)	Less than significant

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

^b Alternatives Abbreviations: PG&E Route Option 1B (1B), Partial Underground (PU), West of Skyline Transition Station (WS), Sneath Lane (SL), Cherry Avenue (CA), Route Option 4B (4B), Modified Existing Underground 230 kV (ME), Junipero Serra (JS)

Table ES-6. Summary of Impacts and Mitigation for Alternative Routes

Impact	Applicable Alternatives ^b	Impact Class ^a	Mitigation Measure(s)	Residual Impact
V-16: Key Viewpoint 14 – Sawyer Camp Trail.	PU	Class II	V-16a: Relocate from Sawyer Camp Trail. Mitigation Measures V-6a and V-15b (above)	Less than significant
V-17: Key Viewpoint 15 – San Andreas Trail.	PU	Class II	V-17a: Relocate Tower 13/84 V-17b: Eliminate proposed Towers 12/80 and 12/82. Mitigation Measures V-6a and V-15b (above)	Less than significant
V-18: Key Viewpoint 16 – Sweeney Ridge / Bay Discovery Site.	PU	Class III	Mitigation Measures V-6a and V-19a	Less than significant
V-19: Key Viewpoint 17 – Skyline Boulevard Northbound.	PU	Class II	V-19a: Eliminate Towers 13/89, 14/91, 14/92, and 14/94. Mitigation Measures V-6a and V-15b (above)	Less than significant
V-20: Key Viewpoint 18 – Transition Station / San Bruno Avenue.	PU	Class I	V-20a: Transition station landscaping.	Significant
V-21: Visual impact of modifications to substations, switchyards, and taps.	1B, PU	Class III	Mitigation Measures V-1a through V-20a	Less than significant
V-22: Introduction of complex industrial features into landscapes generally natural in appearance and lacking such features.	1B	Class I	Mitigation Measure V-20a (above)	Significant
V-23: Cañada Road between I-280 and Edgewood Road.	PU	Class I	None	Significant
V-24: Visual impacts from transition stations.	PU	Class I	Mitigation Measure V-20a (above)	Significant
V-25: Crossing of I-280 at Tower 8/50 and Crystal Springs Golf Course.	PU	Class I	None	Significant
V-26: North of Crystal Springs Golf Course and west of I-280.	PU	Class III	Mitigation Measure V-6a (above)	Less than significant
V-27: West of Skyline Transition Station Alternative (near Tower 14/93).	WS	Class II	V-27a: Transition Station Siting Study. Mitigation Measures V-6a and V-20a (above)	Less than significant
V-28: Sneath Lane Transition Station with all underground route options.	SL	Class III	Mitigation Measure V-20a (above)	Less than Significant

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

^b Alternatives Abbreviations: PG&E Route Option 1B (1B), Partial Underground (PU), West of Skyline Transition Station (WS), Sneath Lane (SL), Cherry Avenue (CA), Route Option 4B (4B), Modified Existing Underground 230 kV (ME), Junipero Serra (JS)

Table ES-6. Summary of Impacts and Mitigation for Alternative Routes

Impact	Applicable Alternatives ^b	Impact Class ^a	Mitigation Measure(s)	Residual Impact
Biological Resources				
B-1: Temporary and permanent loss of sensitive vegetation communities.	1B, PU, WS, ME	Class II	B-1a: Perform wetlands delineation and avoidance. B-1b: Provide restoration/compensation for vegetation losses. B-1c: Protect serpentine grasslands and Edgewood Park. B-1d: Perform pre-construction surveys and provide monitors. B-1e: Complete rare plant surveys. B-1f: Protect sensitive habitats during construction. B-1g: Implement weed control. B-1h: Negotiate compensation for loss of significant plant communities. B-1i: Implement worker education. B-1j: Restrict construction ROW through sensitive habitat (Partial Underground Alternative). B-1k: Use Transition Tower Instead of Station (West of Skyline Transition Station Alternative). B-1l: Colma Creek Crossing; Frac-Out Contingency Plan (Modified Existing 230 kV Underground Alternative).	Significant
B-2: Loss or damage to trees.	1B, PU, WS	Class II	B-2a: Compensate for tree loss.	Less than significant
B-3: Erosion and sedimentation.	1B, PU, WS	Class II	B-3a: Complete restoration after construction.	Less than significant
B-4: Wildlife habitat removal.	1B, PU, WS	Class III	Mitigation Measure B-1b (above)	Less than significant
B-5: Direct wildlife mortality.	1B, PU, WS	Class II	B-5a: Protect wildlife during construction.	Less than significant
B-6: Wildlife disturbance from human presence.	1B, PU, WS	Class II	Mitigation Measures B-1c, B-1e, B-1f, B-1i, B-5a, and B-8a	Less than significant
B-7: Bird electrocution and tower/line collisions.	1B (with overhead dam crossing), PU, WS, SL	Class II/III	B-7a: Minimize bird electrocution and collision.	Less than significant

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

^b Alternatives Abbreviations: PG&E Route Option 1B (1B), Partial Underground (PU), West of Skyline Transition Station (WS), Sneath Lane (SL), Cherry Avenue (CA), Route Option 4B (4B), Modified Existing Underground 230 kV (ME), Junipero Serra (JS)

Table ES-6. Summary of Impacts and Mitigation for Alternative Routes

Impact	Applicable Alternatives ^b	Impact Class ^a	Mitigation Measure(s)	Residual Impact
B-8: Habitat removal or disturbance of special status wildlife species.	1B, PU, WS	Class II	B-8a: Protection for special status species. B-8b: Consultation with resource agencies. Mitigation Measures B-1a through B-7a	Less than significant
B-9: PG&E Route Option 1B-underwater crossing around dam.	1B	Class II	B-9a: Habitat Loss from Underwater Cable Installation.	Less than significant
Cultural Resources				
C-1: Construction operations have the potential to affect known archaeological resources.	1B, PU, WS, SL, CA, JS, ME	Class II	C-1a: Avoid Environmentally Sensitive Areas (ESAs). C-1b: Develop Cultural Resources Treatment Plan (CRTP). C-1c: Conduct construction monitoring.	Less than significant
C-2: Previously undetected cultural resources may be damaged or destroyed during project construction.	All	Class II	Mitigation Measures C-1b and C-1c (above)	Less than significant
C-3: Construction operations have the potential to impact site P-41-390.	1B	Class II	C-3a: Evaluate historic bridge.	Less than significant
C-4: Construction operations have the potential to impact Crystal Springs Dam.	1B	Class II	C-4a: Crystal Springs Dam.	Less than significant
C-5: Construction operations have the potential to impact site WSA-JM-2.	ME	Class II	C-5a: Avoid Site WSA-JM-2.	Less than significant
Geology, Soils, and Paleontology				
G-1: Soft or loose soils along alignment may affect tower foundations and footings, excavation stability, and access to construction areas.	PU	Class II	G-1a: Perform geotechnical studies.	Less than significant
G-2: Excavation, grading, or fill placement during construction activities could cause slope instability.	PU	Class II	G-2a: Protect against slope instability.	Less than significant
G-3: Paleontologic resources may be destroyed by construction activities.	All	Class II	G-3a: Consult a paleontologist.	Less than significant
G-4: Naturally occurring asbestos fibers may be encountered and become airborne through construction activities.	1B, PU	Class II	Mitigation Measure A-3a (below)	Less than significant
G-5: Strong groundshaking from local and regional seismic sources.	All	Class II	G-5a: Reduce effects of groundshaking.	Less than significant

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

^b Alternatives Abbreviations: PG&E Route Option 1B (1B), Partial Underground (PU), West of Skyline Transition Station (WS), Sneath Lane (SL), Cherry Avenue (CA), Route Option 4B (4B), Modified Existing Underground 230 kV (ME), Junipero Serra (JS)

Table ES-6. Summary of Impacts and Mitigation for Alternative Routes

Impact	Applicable Alternatives ^b	Impact Class ^a	Mitigation Measure(s)	Residual Impact
G-6: Seismically induced ground failures including liquefaction, lateral spreading, seismic slope instability, and ground-cracking.	1B, PU, JS, ME	Class II	G-6a: Geotechnical Investigations for Liquefaction and Slope Instability.	Less than significant
G-8: Surface fault rupture at crossings of active and potentially active fault traces.	PU, WS, SL, JS, ME	Class I (for proposed and alternative transition stations); Class II	G-8a: Minimize Project Structures Within Active Fault Zone.	Less than significant
G-9: Expansive, soft, loose and/or compressible soils.	CA, JS	Class II	G-9a: Implement Standard Engineering Methods for Problematic Soils.	Less than significant
G-11: Corrosive soils.	ME	Class II	G-11a: Implement Standard Engineering Methods for Corrosive Soils.	
Hydrology and Water Quality				
H-1: Soil erosion and sedimentation from construction activity and access roads.	All	Class II	H-1a: Control erosion and sedimentation.	Less than significant
H-2: Degradation of surface or groundwater quality through spill of potentially harmful materials used in construction.	All	Class II	H-2a: Control hazardous substances.	Less than significant
H-3: Increased runoff from new impervious areas.	1B, PU, WS, SL	Class III	None	Less than significant
H-4: Encroachment into a floodplain or watercourse by other permanent project features.	1B, PU, WS, SL	Class II	H-4a: Prevent flood damage.	Less than significant
H-5: Construction in a potential dam inundation area.	1B, PU	Class III	None	Less than significant
H-6: Water quality degradation through project-related excavation.	All	Class II	Mitigation Measure H-2a (above) Mitigation Measure HAZ-3a (below)	Less than significant
H-7: Water quality degradation caused by accidental releases of oil from substations or transition station.	1B, PU, WS, SL	Class II (for Substations, Switchyards, and Taps); Class III	H-7a: Protect against operational oil releases.	Less than significant
H-8: Exposure of the underground cable to damage through stream scour and erosion.	1B, PU, WS, SL, JS, ME	Class II	H-8a: Prevent scour and erosion.	Less than significant
H-9: Interruption of groundwater flow or modification of groundwater depths during construction of underground transmission line.	All	Class II	H-9a: Reduce construction effects on groundwater.	Less than significant
H-10: Degradation of water quality due to the use of motorized watercraft.	1B	Class II	H-10a: Prevent contamination from motorized watercraft.	

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Table ES-6. Summary of Impacts and Mitigation for Alternative Routes

Impact	Applicable Alternatives ^b	Impact Class ^a	Mitigation Measure(s)	Residual Impact
Public Health and Safety				
HAZ-1: Potential hazardous substance spills during construction.	All	Class II	Mitigation Measure H-2a (above)	Less than significant
HAZ-2: Excavation could result in mobilization of existing contamination.	All	Class II	HAZ-2a: Conduct Phase II investigations.	Less than significant
HAZ-3: Previously unknown contamination could be encountered during construction.	All	Class II	HAZ-3a: Contaminated Groundwater or Soils. HAZ-3b: Observe exposed soil for contamination.	Less than significant
HAZ-4: Release of hazardous materials during operation at transition station or substations.	WS, SL	Class III	HAZ-4a: Document compliance.	Less than significant
PS-1: Radio and television interference.	All	Class II	PS-1a: Limit the conductor surface electric gradient. PS-1b: Document complaints and responsive action.	Less than significant
PS-2: Induced currents and shock hazards in joint use corridors.	All	Class II	PS-2a: Reduce effects of induced currents and shocks.	Less than significant
PS-3: Effects on cardiac pacemakers.	All	Class III	None	Less than significant
PS-4: Wind, earthquake, and fire hazards.	All	Class III	None	Less than significant
Recreation				
R-1: Increased use of recreational resources.	All	No impact	None	Less than significant
R-2: Construction disturbance at recreation facilities.	All	Class II/III	R-2a: Avoid peak use periods and notify on-site. R-2b: Review and approve construction plan for San Bruno Mountain State and County Park. Mitigation Measures V-1a, L-4a, L-4b, L-7a, and T-1a	Less than significant
R-3: Operation-related effects on recreational facilities.	1B, PU, WS, SL	Class I (with overhead dam crossing); Class II/III; Class IV for PU in Edgewood Park	Mitigation Measures V-5a, V-6a, V-8a, V-14a, V-15b, V-16a, V-17a, and V-19a (above)	Less than significant

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Table ES-6. Summary of Impacts and Mitigation for Alternative Routes

Impact	Applicable Alternatives ^b	Impact Class ^a	Mitigation Measure(s)	Residual Impact
Air Quality				
A-1: Construction activities would create dust emissions.	All	Class II	A-1a: Control dust emissions.	Less than significant
A-2: Construction equipment would generate exhaust emissions.	All	Class II	A-2a: Control exhaust emissions.	Less than significant
A-3: Construction activity could encounter naturally occurring asbestos.	All	Class II	A-3a: Implement Asbestos Dust Mitigation Plan.	Less than significant
A-4: Operational air quality impacts associated with maintenance and inspections.	All	Class III	None	Less than significant
A-5: Substation and switchyard work could encounter asbestos-containing materials.	1B, PU	Class III	None	Less than significant
Noise and Vibration				
N-1: Construction activities would temporarily increase local noise levels.	All	Class II	Mitigation Measures L-4a and L-4b (above)	Less than significant
N-2: Ground-borne vibration could cause a temporary nuisance during construction.	All	Class II	Mitigation Measures L-4a and L-4b (above)	Less than significant
N-3: Corona noise from operation of the overhead transmission line.	PU, WS, SL	Class III	None	Less than significant
N-4: Noise from inspection and maintenance activities.	All	Class III	None	Less than significant
Transportation and Traffic				
T-1: Temporary road and lane closures.	All	Class II	T-1a: Prepare Transportation Management Plans. T-1b: Restrict lane closures.	Less than significant
T-2: Traffic generated by construction.	All	Class III	None	Less than significant
T-3: Physical impacts to roads and sidewalks.	All	Class II	T-3a: Repair damaged roadways.	Less than significant
T-4: Restricted access to properties.	All	Class II	Mitigation Measures L-7a and L-7b (above)	Less than significant
T-5: Interference with pedestrian/bicycle circulation and safety.	All	Class III	None	Less than significant
T-6: Construction interference with emergency response.	All	Class II	T-6a: Ensure emergency response access.	Less than significant
T-7: Loss of parking.	All	Class III	None	Less than significant
T-8: Disruption of public transit.	All	Class III	None	Less than significant
T-9: Conflict with planned transportation projects.	1B, WS, SL, ME	Class II	T-9a: Avoid grade separation. T-9b: Coordinate with San Mateo County's bridge replacement project plans (PG&E Route Option 1B Alternative).	Less than significant

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Table ES-6. Summary of Impacts and Mitigation for Alternative Routes

Impact	Applicable Alternatives ^b	Impact Class ^a	Mitigation Measure(s)	Residual Impact
Socioeconomics				
S-1: Induce demand for labor.	All	Class III	None	Less than significant
S-2: Displacement of people or existing housing.	All	Class III	None	Less than significant
Public Services and Utilities				
U-1: Utility system disruptions.	All	Class II	U-1a: Notify of utility service interruption. U-1b: Protect underground utilities.	Less than significant
U-2: Public service system disruption.	All	Class III	None	Less than significant
U-3: Project-required utility demands.	All	Class III	None	Less than significant

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